



ESKER ***VSI-FAX***[®]

Fax Boards and Fax Drivers Installation

6.1

VSI-FAX Version 6.1 Issued April 2009

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Fax boards and fax drivers installation

This section's aim is to help you install fax board drivers to fax through VSI-FAX.

VSI-FAX takes advantage of device-independent fax drivers to support a wide variety of fax solutions. The device-independent fax drivers give you the flexibility to choose the appropriate fax hardware or software. The faxed output will be the same high-quality image, regardless of the brand of the fax solution you choose.

The currently recommended fax boards are the **Dialogic® Brooktrout® TR1034** and **TruFax boards**, and the **Dialogic® Diva Server fax boards**. Refer to *Recommended modems and fax boards* in the [VSI-FAX Recommended Modems and Fax Boards](#) documentation for a complete list of the supported boards. VSI-FAX also supports the Dialogic® Brooktrout® SR140™ fax software solution for Fax over IP.

If using a Dialogic Brooktrout fax solution for VSI-FAX, refer to [Dialogic Brooktrout fax boards and drivers](#) (page 7).

If using a Dialogic Diva Server fax board, refer to [Dialogic Diva Server fax boards and drivers](#) (page 93).

You cannot use different kinds of devices at the same time: you use either Brooktrout fax board OR Diva Server fax board OR modem.



Dialogic Brooktrout fax boards and drivers

VSI-FAX supports various Dialogic® Brooktrout® drivers from Dialogic Corporation®. This allows you to choose the most appropriate fax solution for your needs. The two main Dialogic® Brooktrout® fax solutions that you can set up with VSI-FAX are :

- Faxing using a **fax board**: Brooktrout TR1034™ or TruFax fax boards. Refer to *Recommended modems and fax boards* in the [VSI-FAX Recommended Modems and Fax Boards](#) documentation for a complete list of the supported boards. When faxing using an intelligent Brooktrout fax board like TR1034, you have the option to set up Fax over IP in addition to physical faxing in PSTN mode.
- Faxing using Dialogic® Brooktrout® **SR140™** fax software solution for Fax over IP.

When implementing **Fax over IP** with an intelligent Brooktrout fax board or with Brooktrout **SR140** software solution for Fax over IP, you have the choice between two Fax over IP protocols: **H.323** and **SIP**.

Qualified platforms

Brooktrout TR1034, TruFax boards and SR140 software are supported on the following Windows and on UNIX/Linux platforms.

- Windows Server 2003 SP2 32-bits or 64-bits.
- Windows Server 2008 32-bits or 64-bits.
- Red Hat Enterprise 4 or 5.

VSI-FAX does not support Brooktrout integration on platforms and versions that are not in the above list. While it is possible that the software will operate properly with Brooktrout fax solution on other systems, we have not necessarily tested our software with fax hardware on platforms that are not listed, that's why we say we do not support them.

Brooktrout matrix

The following matrix shows the Brooktrout SDK version and the Brooktrout fax solution supported by each platform. This information is useful for Esker Technical Support staff.

Operating System	Version	Fax solution		
		Fax over PSTN Board	Fax over IP Board	SR140 Fax Software
Windows				
	2003 SP2	SDK 6.0.0	SDK 6.0.0	SDK 6.0.0
	2008	SDK 6.0.0	SDK 6.0.0	SDK 6.0.0
Red Hat				
	Red Hat Enterprise 4	SDK 6.0.0	SDK 6.0.0	SDK 6.0.0
	Red Hat Enterprise 5	SDK 6.0.0	SDK 6.0.0	SDK 6.0.0

The other platforms supported by VSI-FAX Server do not support Brooktrout fax integration if they are not listed in the above table.

Installing the Brooktrout drivers

Depending on your platform, refer to the corresponding topic below to install the drivers for your Brooktrout board:

- [Installing Brooktrout drivers on Windows](#) (page 9)
- [Installing Brooktrout drivers on Unix/Linux](#) (page 35)



Installing Brooktrout drivers on Windows

VSI-FAX supports Dialogic® Brooktrout® TR1034 boards, TruFax boards and SR140 software on a Windows platform. Follow the roadmap that corresponds to the type of fax system you have chosen to set up.

TR1034, TruFax boards on Windows roadmap

You must install the Brooktrout fax driver provided with VSI-FAX when the fax board is detected by your system and before VSI-FAX installation. If you received the Brooktrout fax board directly from the manufacturer, please disregard the driver software shipped with the boards. You must use the Brooktrout driver provided with Esker Platform for a successful installation.

To set up VSI-FAX with Dialogic® Brooktrout® TR1034 or TruFax fax boards, you have to follow these steps:

1. In case of a fresh installation, insert the board in the computer. Brooktrout supplies Plug and Play drivers, allowing better integration in Windows environment (TR1034 Series, Trufax Series). Follow the [Found New Hardware Wizard](#) to install the Plug and Play fax board driver provided with VSI-FAX. For details, refer to [Installing the Plug and Play driver for TR1034, TruFax boards](#) (page 10). You should install the drivers provided with VSI-FAX and NOT the drivers that are included with the boards (if received directly from the manufacturer).

If you are upgrading an VSI-FAX system that includes a Brooktrout TR1034 or TruFax board installation with a Plug and Play driver, you need to update the Plug and Play driver with the driver provided with the VSI-FAX new version **before** upgrading the server itself. The update procedure is described in [Installing the Plug and Play driver for TR1034, TruFax boards](#) (page 10).

2. Configure the Brooktrout TR1034/TruFax drivers for VSI-FAX. For details, refer to [Configuring the Brooktrout driver for TR1034, TruFax boards or SR140](#) (page 18).
3. Install VSI-FAX.

SR140 Fax Software on Windows roadmap

To set up VSI-FAX with the Dialogic® Brooktrout® SR140 software solution for Fax over IP, you have to install the Brooktrout SR140 drivers provided with VSI-FAX, obtain an SR140 Fax Software license, activate this license and configure SR140 on your computer.

These installation and configuration steps can be performed either from the main server setup, or after installation from a standalone setup. For details, refer to [Configuring the Brooktrout driver for TR1034, TruFax boards or SR140](#) (page 18).

Installing the Plug and Play driver for TR1034, TruFax boards

The Brooktrout TR1034, TruFax boards come with a plug and play (PnP) driver. Follow the explanations below to install or update this driver depending on your situation.

In case of fresh installation...

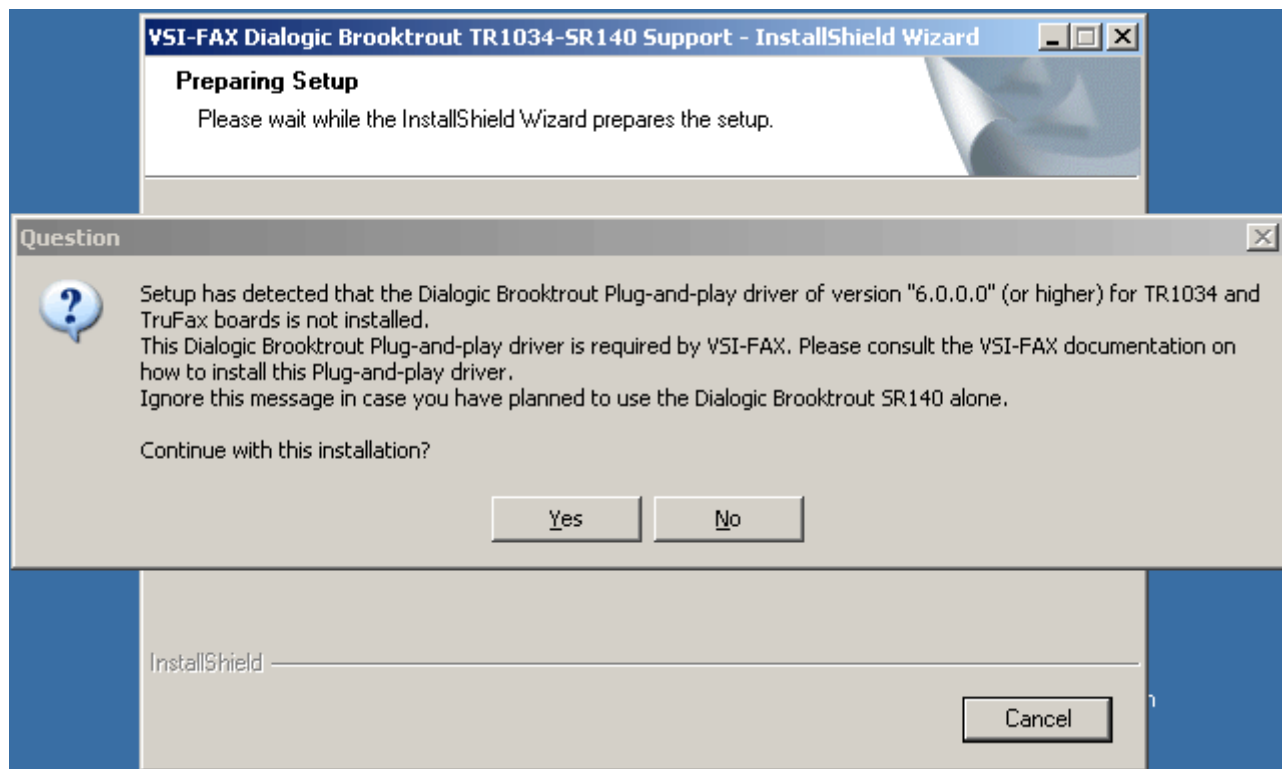
If you do not have any Brooktrout board physically installed in your server:

1. Stop your server.
2. Install your board.
3. Switch on your server.
4. Be sure that all switch settings on the fax boards are correct and the boards are physically installed in the machine.
5. When the system is coming up after the fax board installation, wait for the Plug and Play service to detect the installed board. The [Found New Hardware](#) wizard is displayed. Follow the steps described in [Plug and Play driver installation on Windows Server 2003](#) or [Plug and Play driver installation on Windows Server 2008](#) depending on your platform's operating system.

In case of upgrading...

If you are upgrading a server that already includes a Dialogic® Brooktrout® TR1034 or TruFax board installation with a **Plug and Play driver**, you need to **update** the Plug and Play driver with the driver package included in the new version **before** launching the upgrade of the server.

If you launch the server upgrade before upgrading the Plug and Play driver, you will get the following message:



Click **No**. You need to update the Plug and Play driver with the one included in the new version of VSI-FAX. Follow the steps below.

To launch the update of the Plug and Play driver:

1. Verify that all faxes are completed prior to installing the new driver.
2. Stop the VSI-FAX Server service.
3. Set the VSI-FAX Server service to manual if it was on automatic.
4. From the Device Manager, right-click your fax board under **\Brooktrout Hardware** and select **Update the driver**. An easy way to open Device Manager is to click **Start > Run** and type **devmgmt.msc**.



5. The **Found New Hardware** wizard is displayed. Follow the steps described in [Plug and Play driver installation on Windows Server 2003](#) or [Plug and Play driver installation on Windows Server 2008](#) depending on your platform's operating system.

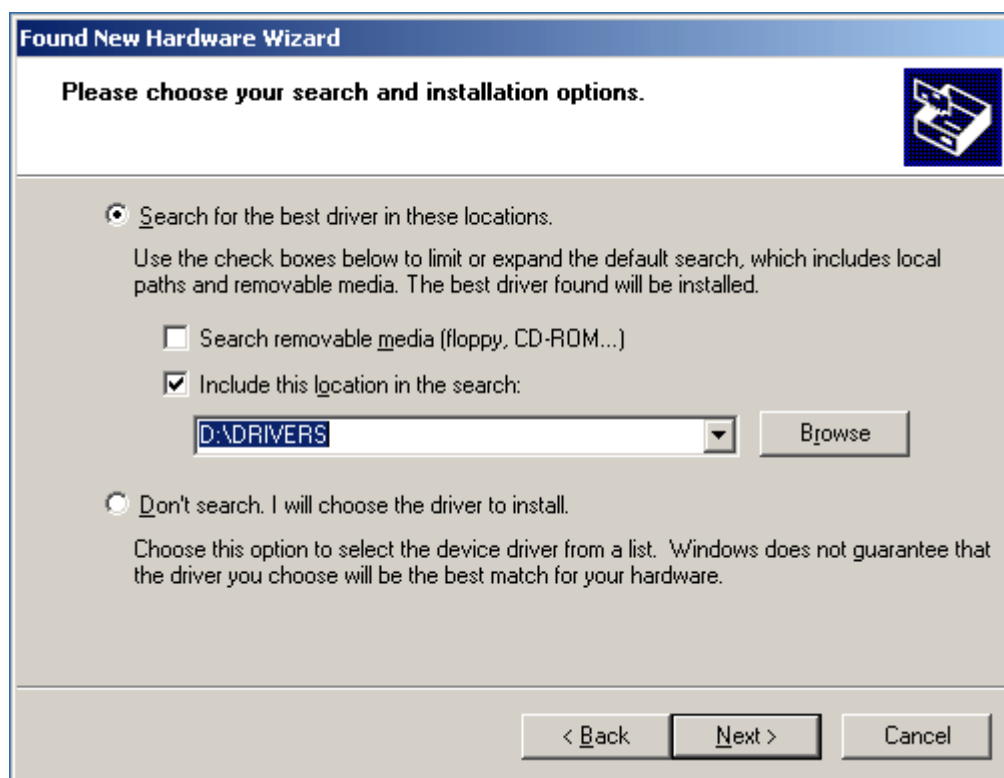
Plug and Play driver installation on Windows Server 2003

Follow the steps below if you are setting up a fax platform running Windows Server 2003 (be it a fresh installation of the Plug and Play driver or an upgrade):

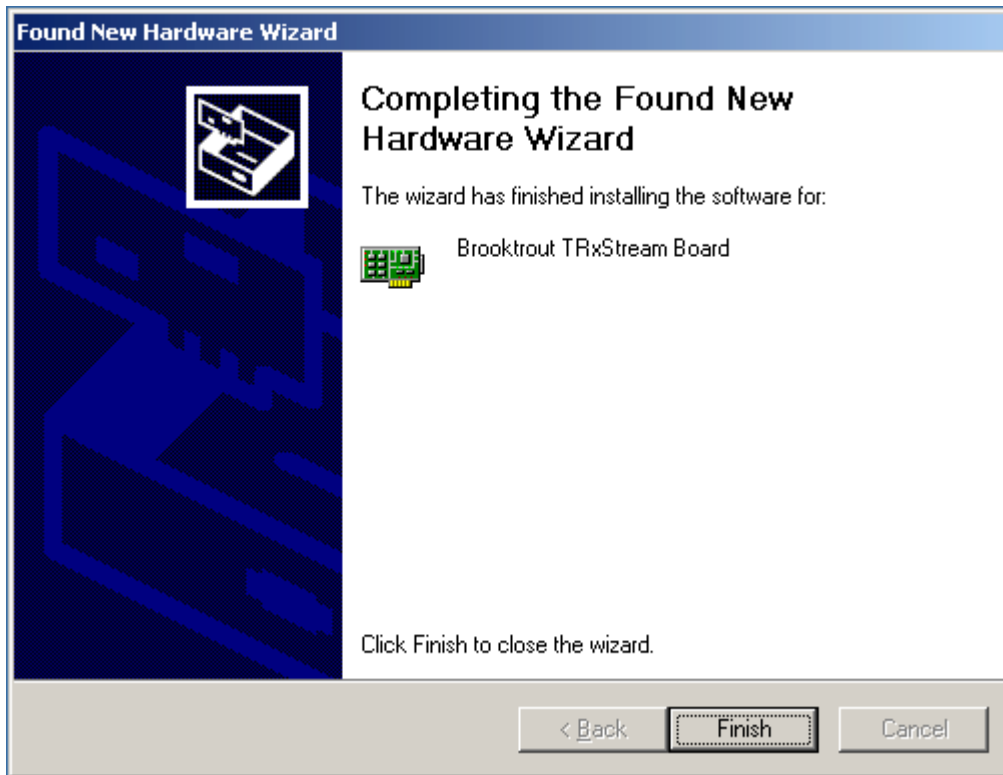
1. The **Found New Hardware Wizard** Welcome screen appears. Select **Install from a list or specific location** and click **Next**:



2. Select the [drivers](#) folder on the VSI-FAX CD:



3. Click [Finish](#) when the installation is completed:



4. Open the Device Manager and check that the Brooktrout device appears with no error:



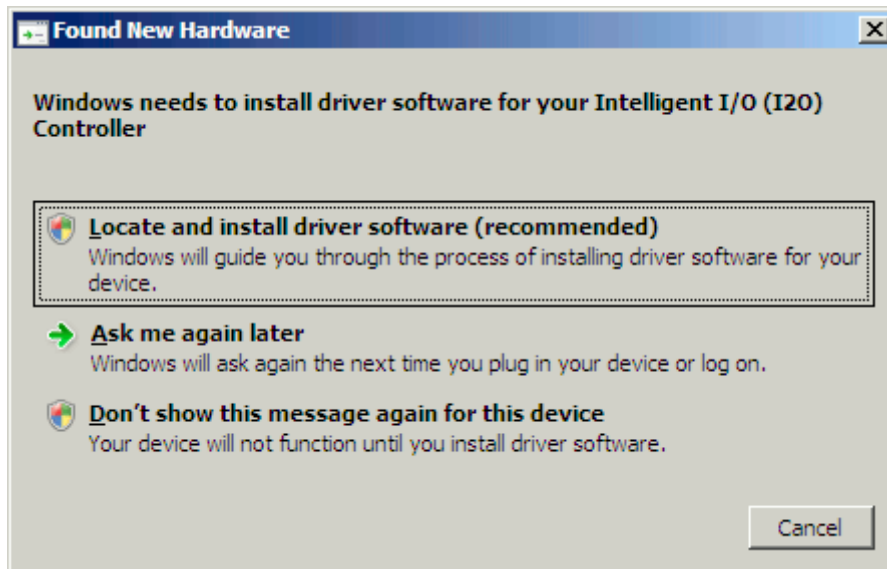
If the device appears with an error, try to reboot the server and repeat the Plug and Play installation.

Now that you have installed/updated the Plug and Play driver, you can launch VSI-FAX Server setup. During the server upgrade, you will configure your Brooktrout board with the new driver you have just upgraded to. For details, refer to [Configuring the Brooktrout driver for TR1034, TruFax boards or SR140](#) (page 18).

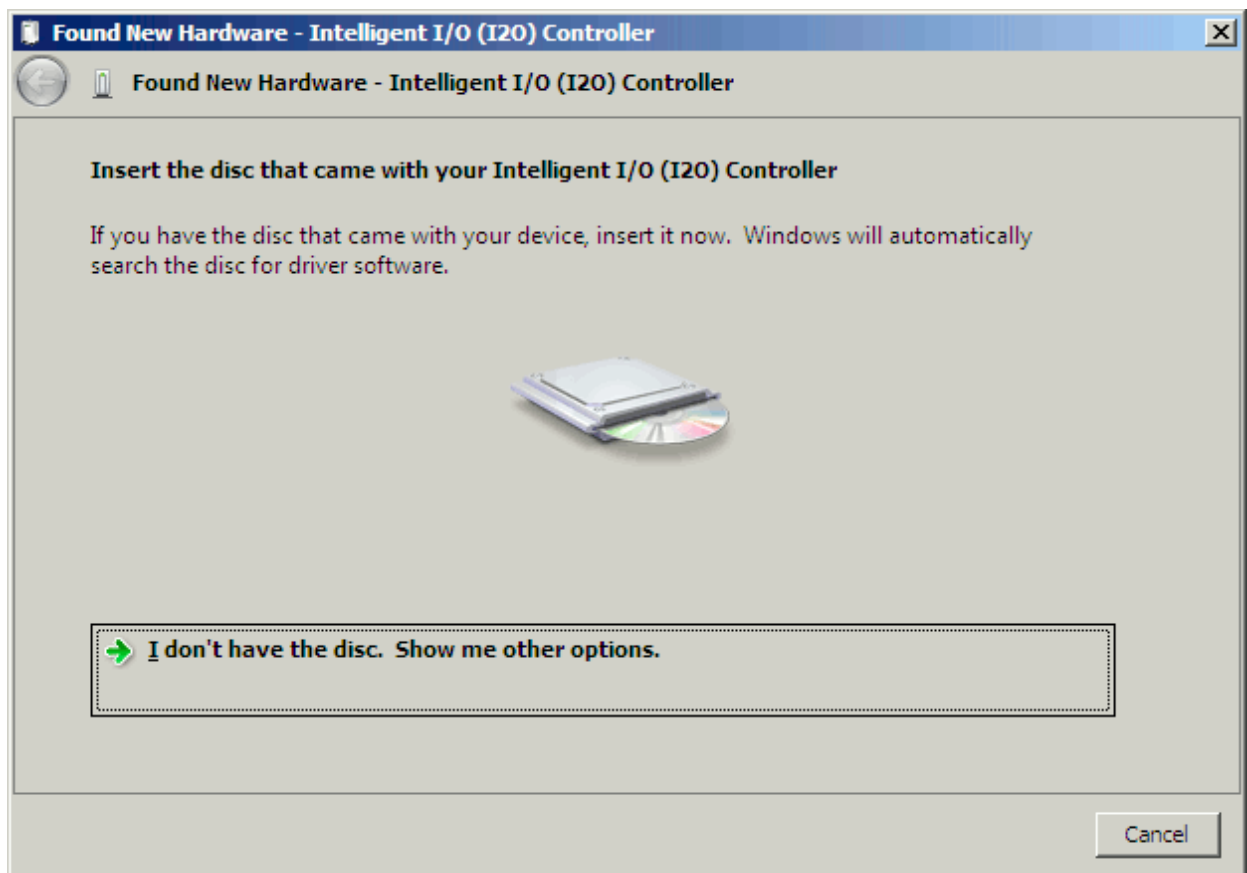
Plug and Play driver installation on Windows Server 2008

Follow the steps below if you are setting up a fax platform running Windows Server 2008 (be it a fresh installation of the Plug and Play driver or an upgrade):

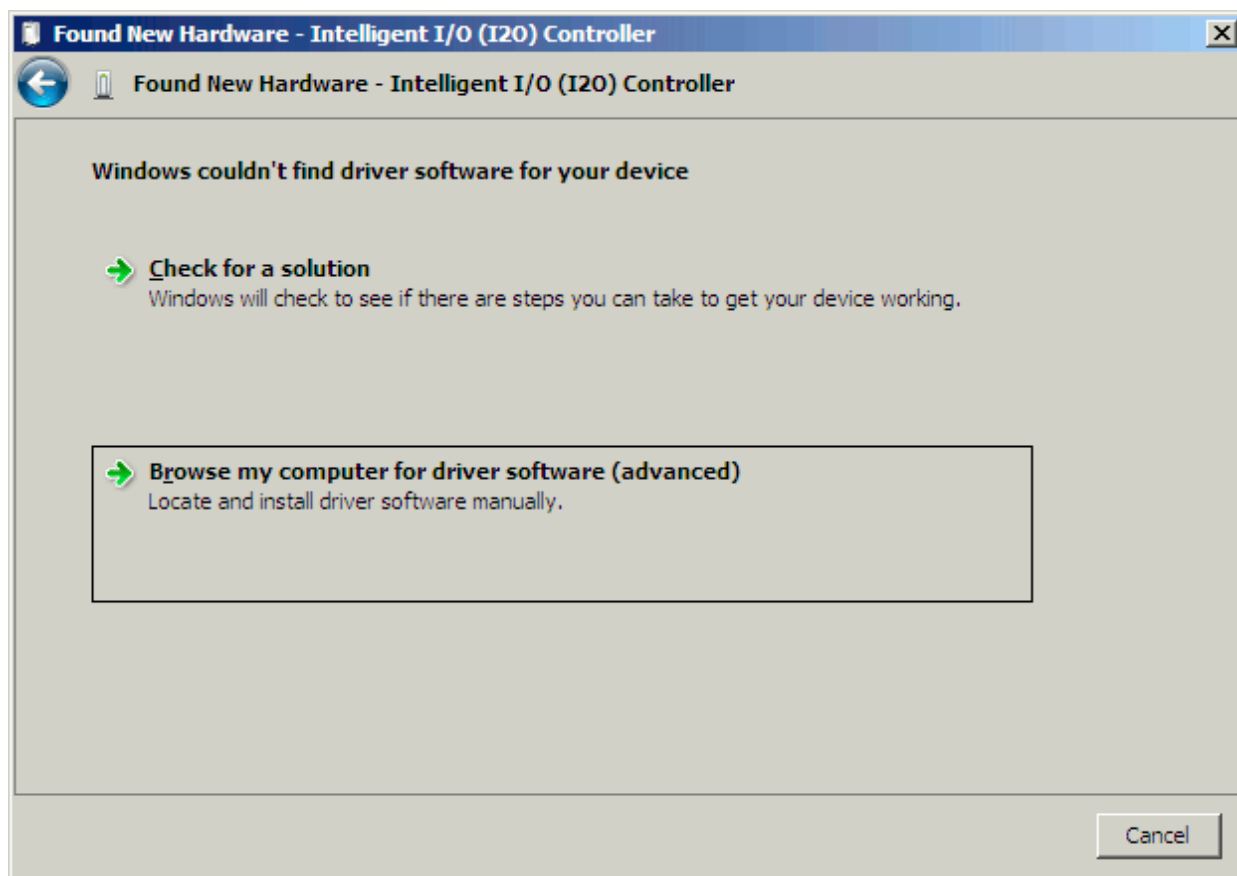
1. The [Found New Hardware](#) wizard appears after reboot. Click [Locate and install driver software \(recommended\)](#):



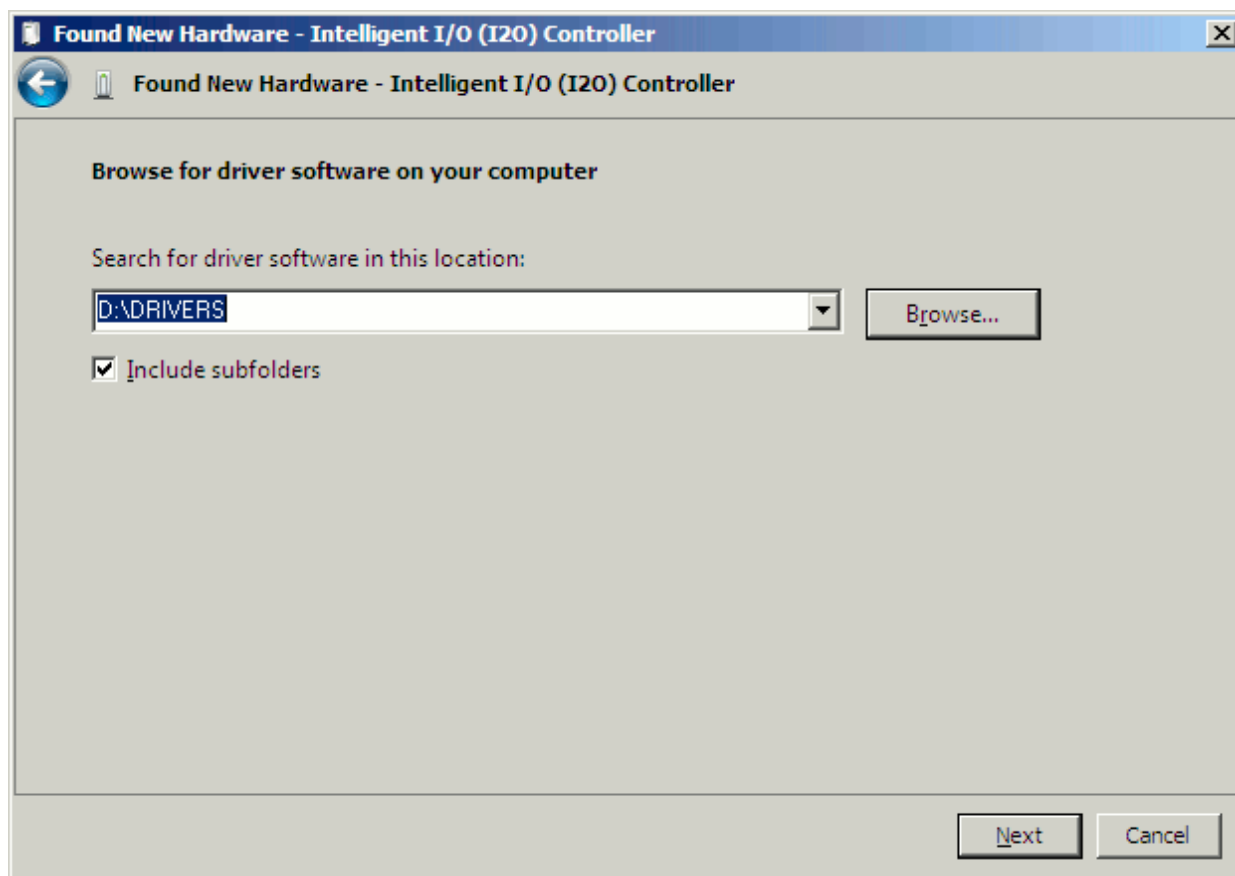
2. You will install the driver from the VSI-FAX CD-ROM, not from the disc that came with the board. Click [I don't have the disc. Show me the other options:](#)



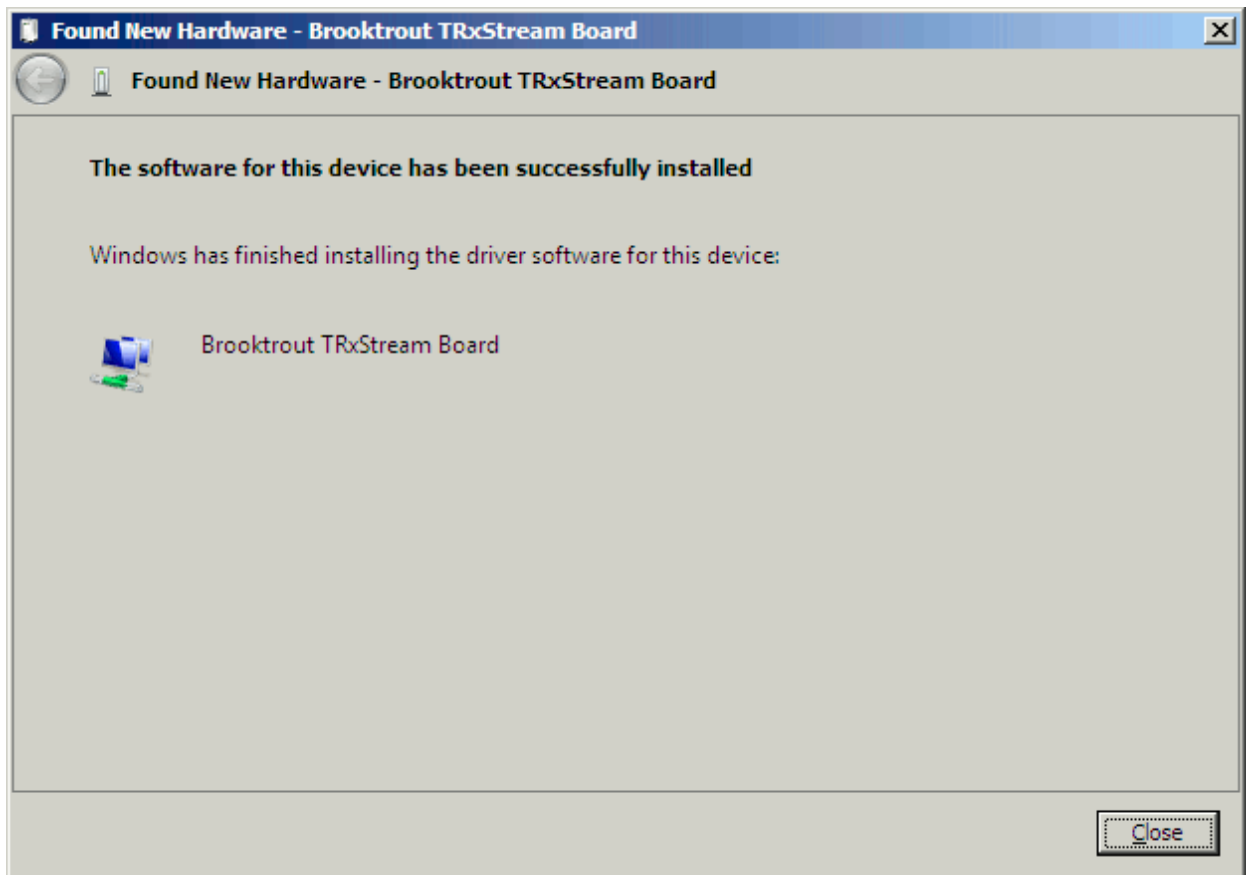
3. Click [Browse my computer for driver software \(advanced\):](#)



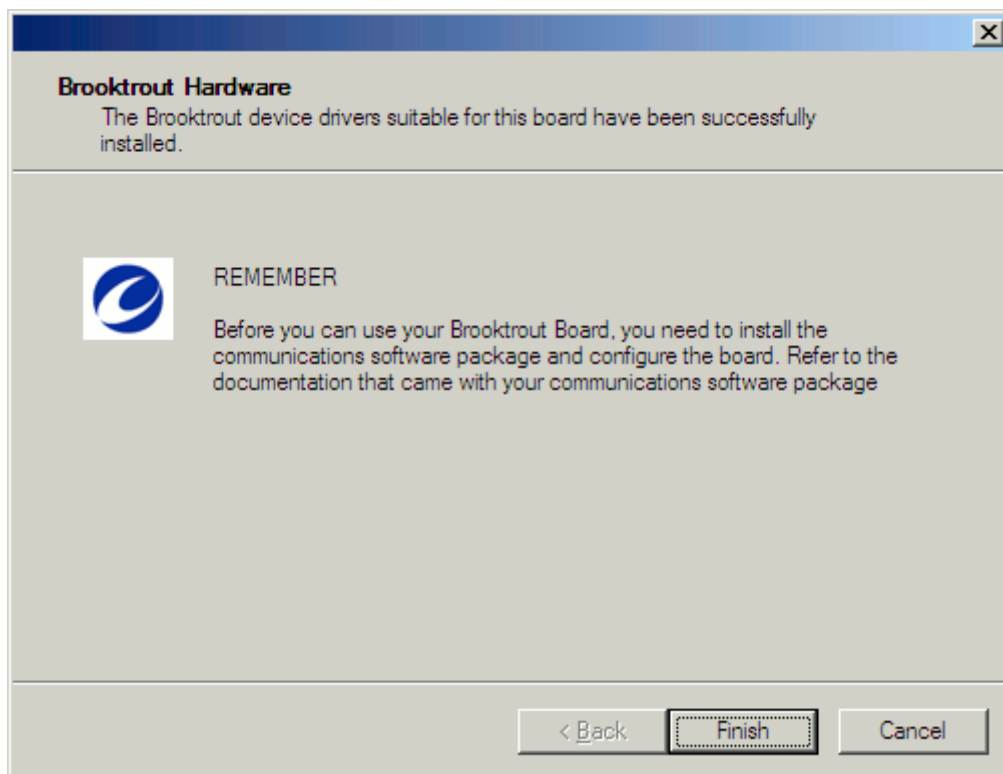
4. Select the [drivers](#) folder on the VSI-FAX CD-ROM and click [Next](#):



5. When the installation is completed, click [Close](#):



6. On the last screen, click [Finish](#):



7. Open the Device Manager and check that the Brooktrout device appears with no error:



If the device appears with an error, try to reboot the server and repeat the Plug and Play installation.

Now that you have installed/updated the Plug and Play driver, you can launch VSI-FAX Server setup. During the server upgrade, you will configure your Brooktrout board with the new driver you have just upgraded to. For details, refer to [Configuring the Brooktrout driver for TR1034, TruFax boards or SR140](#) (page 18).

Configuring the Brooktrout driver for TR1034, TruFax boards or SR140

You need to install the [VSI-FAX Dialogic Brooktrout TR1034-SR140 Support](#) component and use the [Brooktrout Configuration Tool](#) to configure your fax platform.

- With a TR1034 or TruFax board, this will allow you to configure your board parameters.
- With SR140 software, this will allow you to register your SR140 license and configure Fax over IP.

The installation and configuration of the Brooktrout driver for VSI-FAX can be performed:

- [From a standalone installation program](#)

■ [From the main installation program](#)

For details on the wizards, refer to [Driver installation and configuration procedure](#).

From a standalone installation program

You may launch the Brooktrout fax driver's setup separately from the server setup at any time. This is the recommended method in case of a fresh installation.

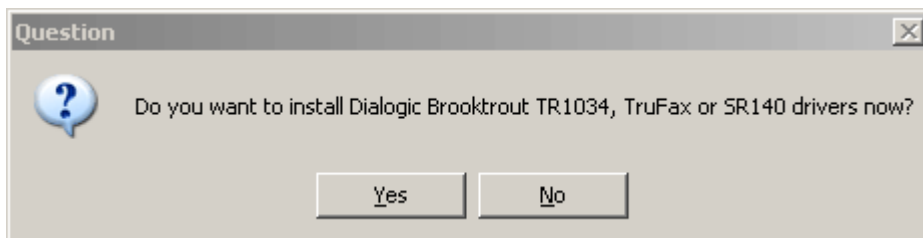
When setting up a TR1034 or TruFax board, you can also choose to install the server without the Brooktrout drivers support and install the support component separately afterwards if you want to evaluate the product with the loopback (demonstration software) before setting up production fax boards.

To launch the driver configuration through an independent process:

1. Run the [setup.exe](#) file located in the [server\w32\bt1034](#) sub-folder of the VSI-FAX CD-ROM.
2. This launches the [VSI-FAX Dialogic Brooktrout TR1034-SR140 Support](#) installation wizard. You can now follow the steps described in [Driver installation and configuration procedure](#).

From the main installation program

1. If you previously set the VSI-FAX Server service startup type to [Manual](#), set it to [Automatic](#) now.
2. Launch the server main setup.
3. When asked if you wish to install Brooktrout TR1034, TruFax or SR140 drivers now, click [Yes](#):

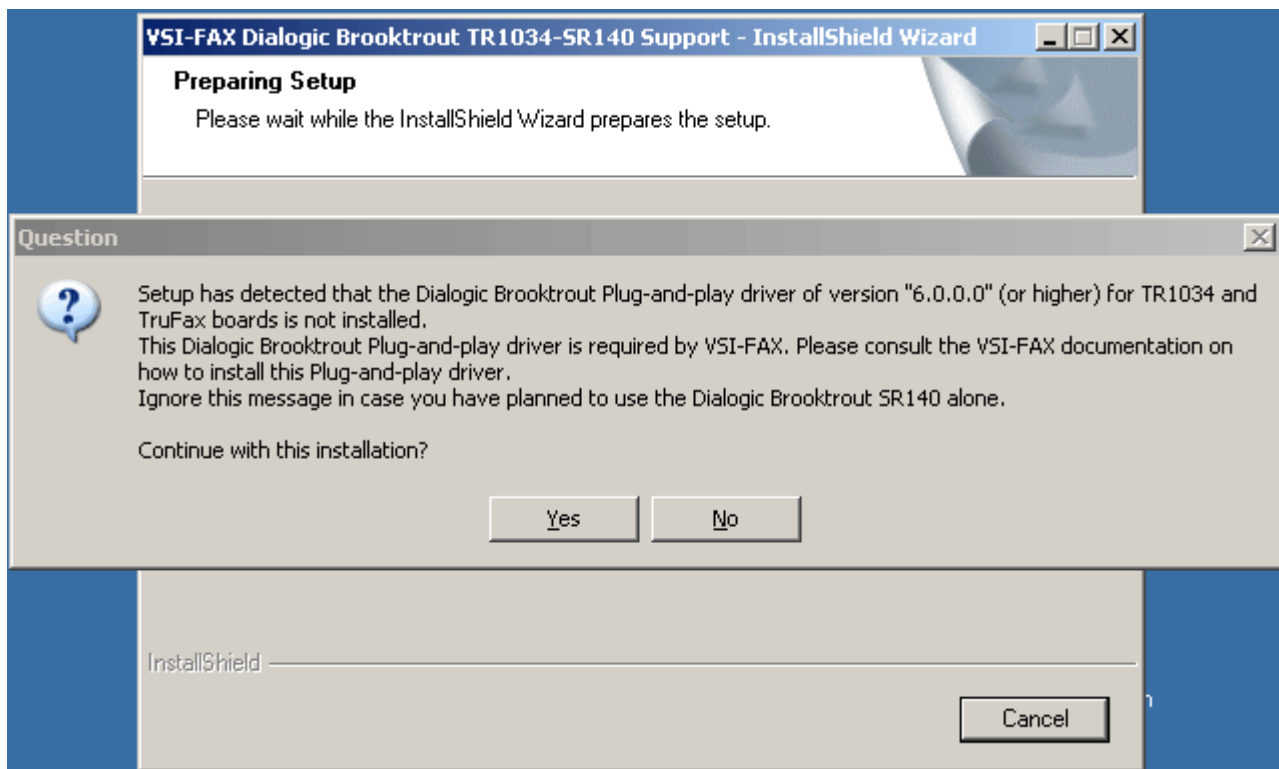


4. This launches the [VSI-FAX Dialogic Brooktrout TR1034-SR140 Support](#) installation wizard. You can now follow the steps described in [Driver installation and configuration procedure](#).

Refer to *Installing VSI-FAX Server on Windows* in the [Installation and Administration](#) documentation for information about non-board specific installation steps.

Driver installation and configuration procedure

1. Whatever the method used to launch the driver support installation (main setup or standalone setup), you may obtain a warning message saying that the Brooktrout driver are not detected:



- To use a **TR1034 or TruFax fax board**, you should install/update the plug and play driver with the one provided in the [\drivers](#) subfolder of the VSI-FAX CD-ROM. Refer to [Installing the Plug and Play driver for TR1034, TruFax boards](#) (page 10).
- To use **SR140**, ignore this message and click [Yes](#).

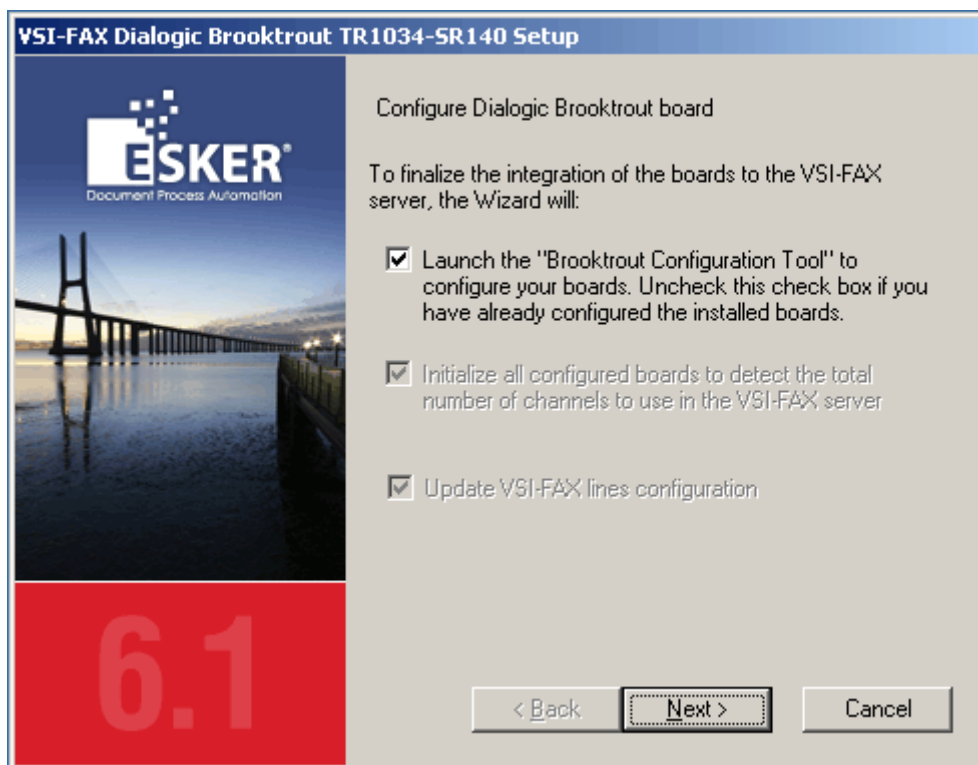
2. You arrive at the following [Welcome](#) screen:



- Click [Next](#) to proceed with the Brooktrout TR1034-SR140 drivers support installation. The following screen displays:



- In the case of an upgrade, you can change the option selection. Leave the screen as is with [Install/Re-install](#) and [Keep actual boards configuration](#) options selected to keep your configuration and simply update it. Be aware that selecting [Reset actual boards configuration](#) clears all your configurations and performs a fresh installation of the Brooktrout drivers. Click [Next](#) to launch the Brooktrout TR1034-SR140 drivers installation.
 - In the case of a fresh installation, the options are greyed. You can only click [Next](#) to launch the Brooktrout TR1034-SR140 drivers installation.
4. You can see a progress bar during the file copy. Various programs are launched (Brooktrout setup, command line). Do not cancel any of these programs.
 5. Once the file copy is finished, the following screen is displayed:



- If you have already run the [Brooktrout Configuration Tool](#), keep the first option selected and click [Next](#) if you want to change your board configuration. Uncheck the first option if you do not need to change the board configuration.
- If this is the first time that you launch the [Brooktrout Configuration Tool](#), the appropriate options are selected and greyed, click [Next](#) to proceed with the configuration.

When the installation is finished, the [Brooktrout Configuration Tool](#) is launched. The next steps are different depending on whether you are setting up a fax board or SR140 software solution and whether the fax board you own (if any) supports Fax over IP and you want to configure Fax over IP or not. There are three cases:

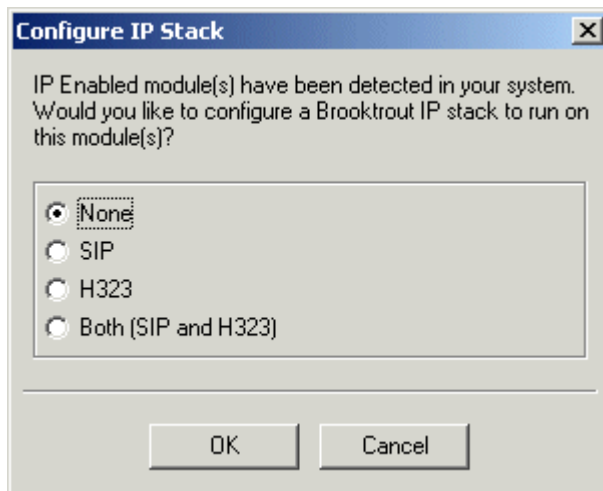
- You own a fax board and want to perform physical faxing in **PSTN** mode only with it (no Fax over IP even if available). Refer to [Fax board in PSTN mode configuration](#) (page 23).
- You own a fax board that supports **Fax over IP** and you want to perform both Fax over IP and physical faxing in PSTN mode. Refer to [Fax board with Fax over IP configuration](#) (page 25).
- You want to set up Brooktrout **SR140** solution for Fax over IP (software only). Refer to [SR140 configuration on Windows](#) (page 29).

Proceed with the steps that correspond to your scenario.

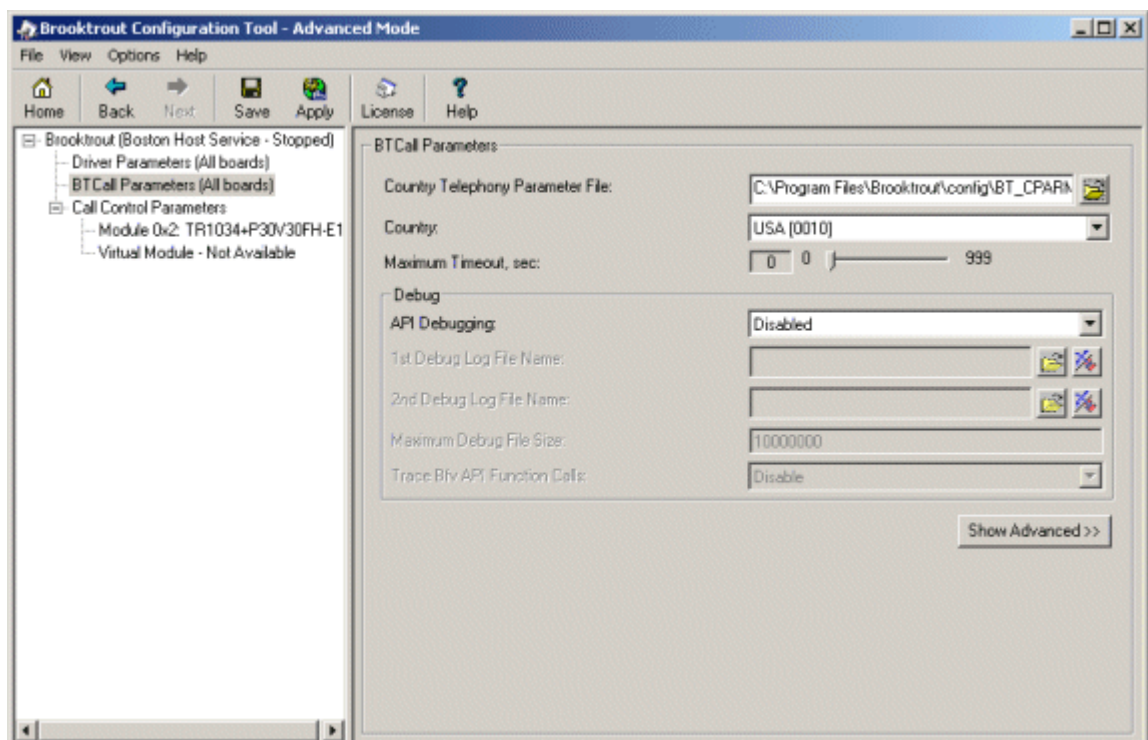
Fax board in PSTN mode configuration

After the steps described in [Configuring the Brooktrout driver for TR1034, TruFax boards or SR140](#) (page 18), continue with the steps below if you own a fax board with which you will perform PSTN physical faxing **only**.

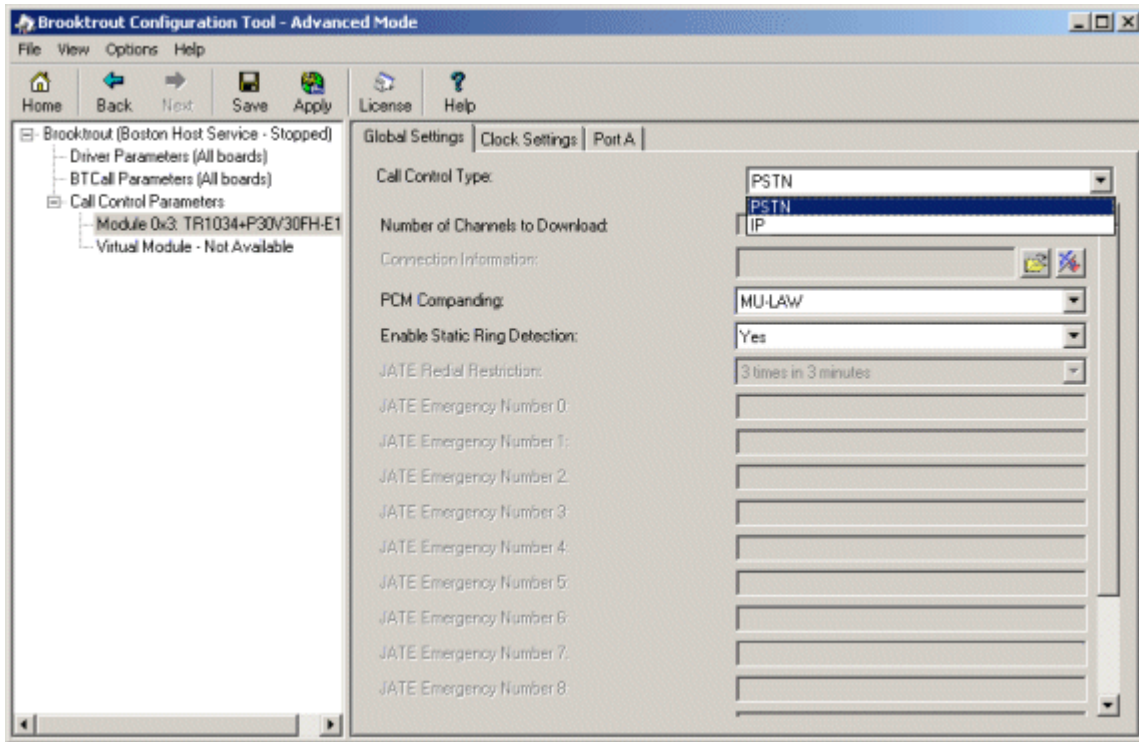
1. If your fax board supports Fax over IP, the [Configure IP Stack](#) dialog box displays when the Brooktrout Configuration Tool is launched. Select [None](#) so that you don't use Fax over IP and instead perform only physical faxing, and click [OK](#).



2. The Brooktrout Configuration Tool is launched to allow you to configure your board. Click on the [BTCall Parameters \(All boards\)](#) node in the tree view to configure [BTCall Parameters](#).
 - Check that the [Country Telephony Parameter File](#) field is set to `%ProgramFiles%\brooktrout\config\BT_CPARM.cfg`.
 - Set the [Country](#) field to your country (if you reside in a European country, select [European Community](#))




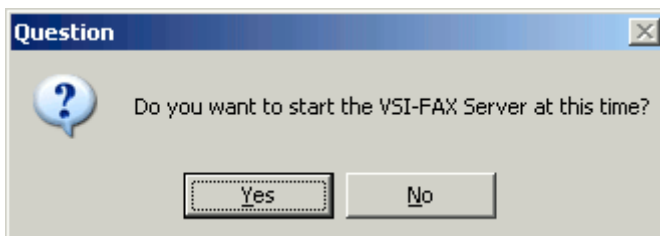
- Expand the [Call Control Parameters](#) node in the tree view, click the fax board item (e.g. Module 0x2: TR1034...) On the [Global Settings](#) tab in the [Call Control Type](#) field, select [PSTN](#) not to use Fax over IP even if available.



You should not have to change the port or anything. The next step is to apply your configuration and quit Brooktrout Configuration Tool.



- IMPORTANT: Click the [Apply](#) button () in the toolbar to apply your configuration. This ensures that the Brooktrout board is correctly installed. You can see a progress bar during the configuration update.
- Once your configuration has been applied, select [File](#) > [Exit](#) to quit the Brooktrout Configuration Tool.
You see a summary status screen. Click [Next](#) to complete.
- If you have launched the Brooktrout TR1034, SR140 drivers installation from VSI-FAX Server's main setup, you are asked whether to start the VSI-FAX Server.



- Click [Yes](#) to start VSI-FAX Server.
- Click [Finish](#) on the final summary screen to complete.

Note

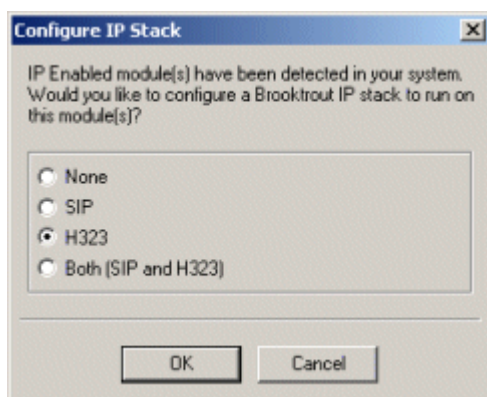
After the installation, you can modify your board configuration by launching the [Brooktrout Configuration Tool](#). For this, run the `configtool.exe` program located in the `%ProgramFiles%\Brooktrout\bin` directory. If you need to

change boards or add a new one, run `vsi-boston-config.exe` under `\VSI-FAX\FaxServer\bin\` in the installation directory.

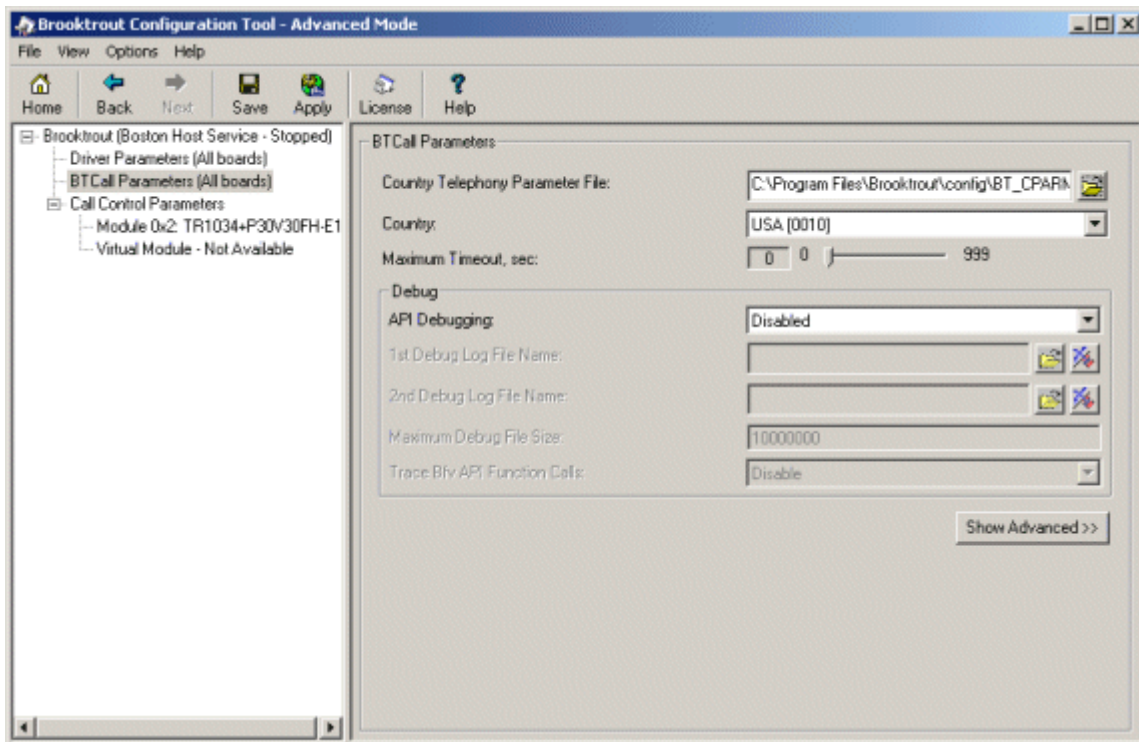
Fax board with Fax over IP configuration

After the steps described in [Configuring the Brooktrout driver for TR1034, TruFax boards or SR140](#) (page 18), continue with the steps below if you own a fax board with which you perform **both** PSTN physical faxing and Fax over IP.

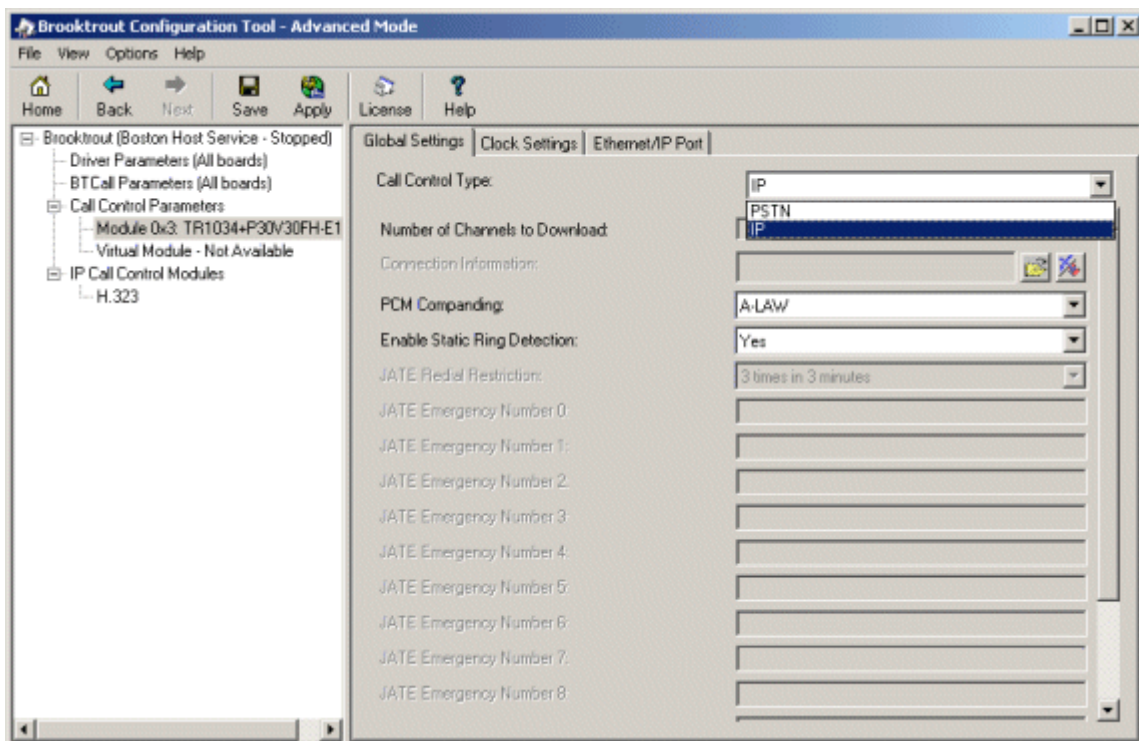
1. The [Configure IP Stack](#) dialog box appears when the Brooktrout Configuration Tool is launched. Select [SIP](#) or [H323](#) depending on which Brooktrout stack you want to run on this board and click [OK](#).



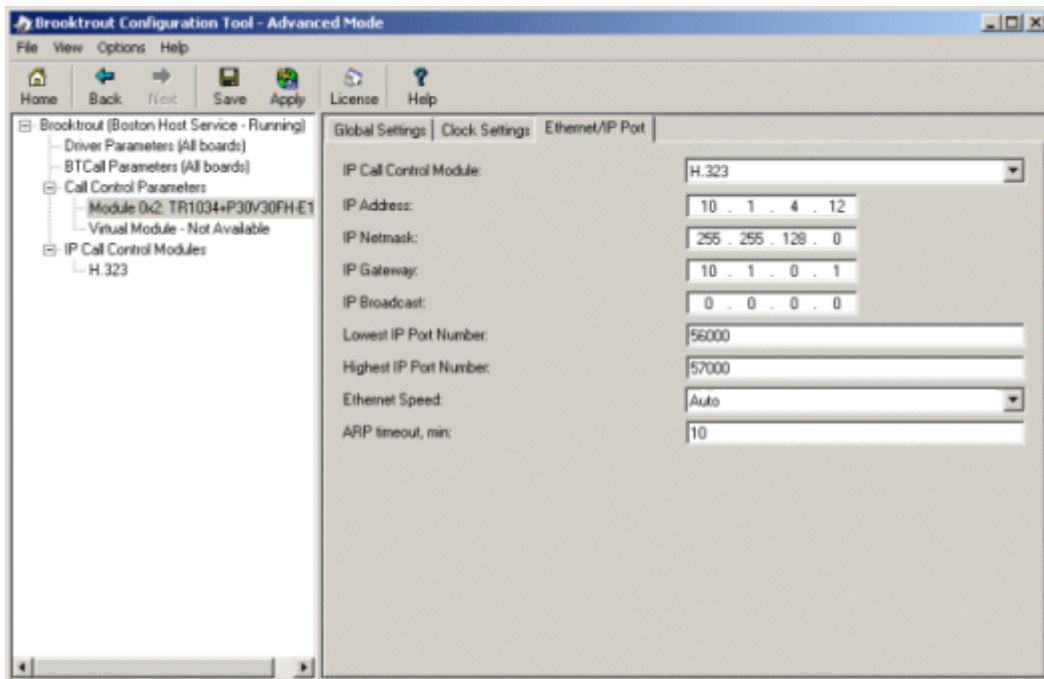
2. The Brooktrout Configuration Tool is launched to allow you to configure your board. Click on the [BTCall Parameters \(All boards\)](#) node in the tree view to configure BTCall Parameters.
 - Check that the [Country Telephony Parameter File](#) field is set to `%ProgramFiles%\brooktrout\config\BT_CPARM.cfg`.
 - Set the [Country](#) field to your country (if you reside in a European country, select [European Community](#))



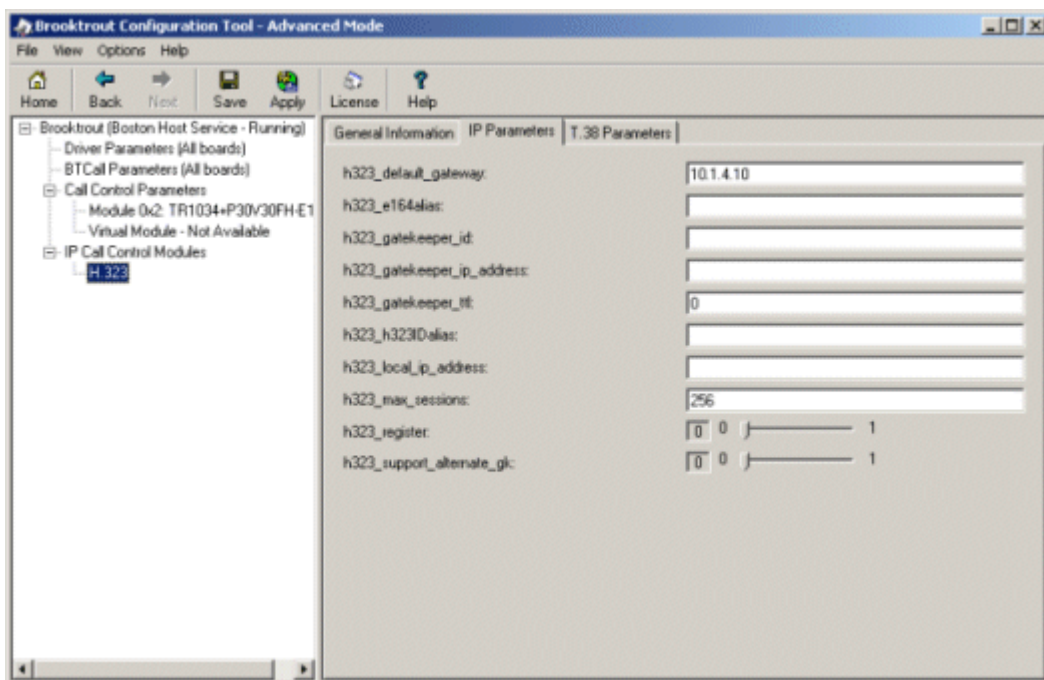
3. Expand the [Call Control Parameters](#) node in the tree view, click the fax board item (e.g. Module 0x2: TR1034...) On the [Global Settings](#) tab in the [Call Control Type](#) field, select [IP](#) to configure Fax over IP (be it with H323 and/or SIP stack).



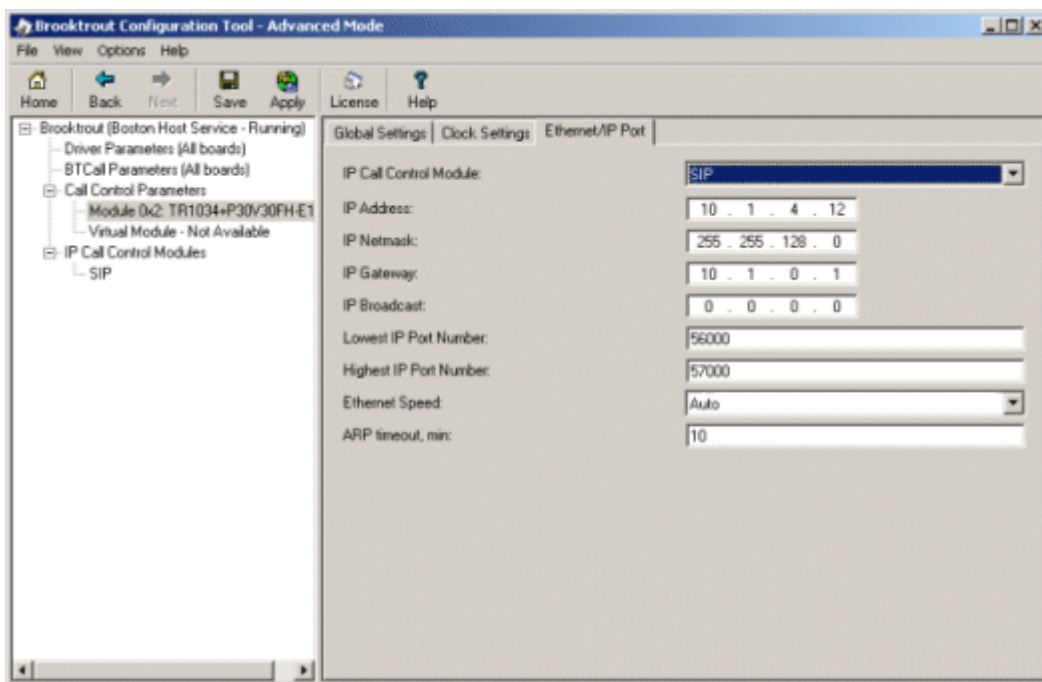
4. (if you selected [H323](#) in the [IP Stack](#) dialog box) To configure the Brooktrout [H323](#) stack to run on the board, expand the [Call Control Parameters](#) node in the tree view, click the fax board item (e.g. Module 0x2: TR1034...), open the [Ethernet/IP Port](#) tab in the right pane, select [H.323](#) in the [IP Call Control Module](#) combo box, and enter the [IP Address](#) of the TR1034 board as shown below:



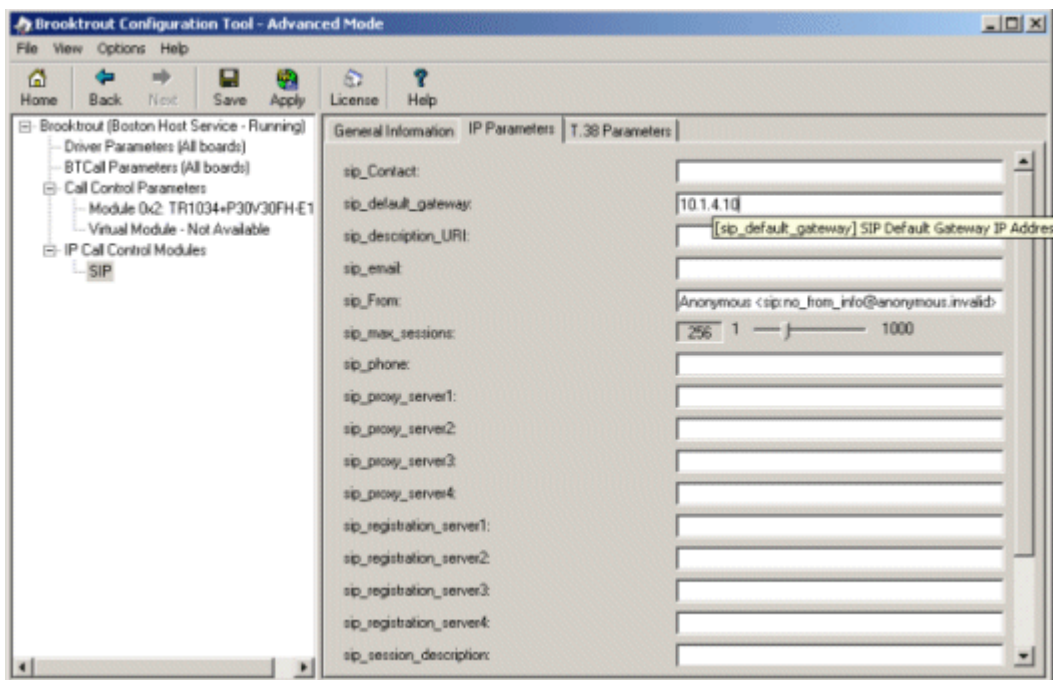
Then expand the **IP Call Control Modules** node in the tree view, and select **H.323**. In the right pane, open the **IP Parameters** tab, and enter the **default gateway** as shown below:




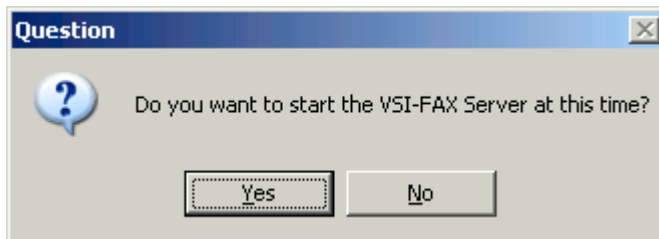
5. (if you selected **SIP** in the **IP Stack** dialog box) To configure the Brooktrout **SIP** stack to run on the board, expand the **Call Control Parameters** node in the tree view, click the fax board item (e.g. Module 0x2: TR1034...), open the **Ethernet/IP Port** tab in the right pane, select **SIP** in the **IP Call Control Module** combo box, and enter the **IP Address** of the TR1034 board as shown below:



Then expand the **IP Call Control Modules** node in the tree view, and select **SIP**. In the right pane, open the **IP Parameters** tab, and enter the **default gateway** as shown below:



6. **IMPORTANT:** Click the **Apply** button () in the toolbar to apply your configuration. This ensures that the Brooktrout board is correctly installed. You can see a progress bar during configuration update.
7. Once your configuration has been applied, select **File > Exit** to quit the Brooktrout Configuration Tool.
8. A summary screen displays. Click **Next** to complete.
9. If you have launched the Brooktrout TR1034, SR140 drivers installation from VSI-FAX Server's main setup, you are asked whether to start the VSI-FAX Server.



10. Click [Yes](#) to start VSI-FAX Server.
11. Click [Finish](#) on the final summary screen to complete.

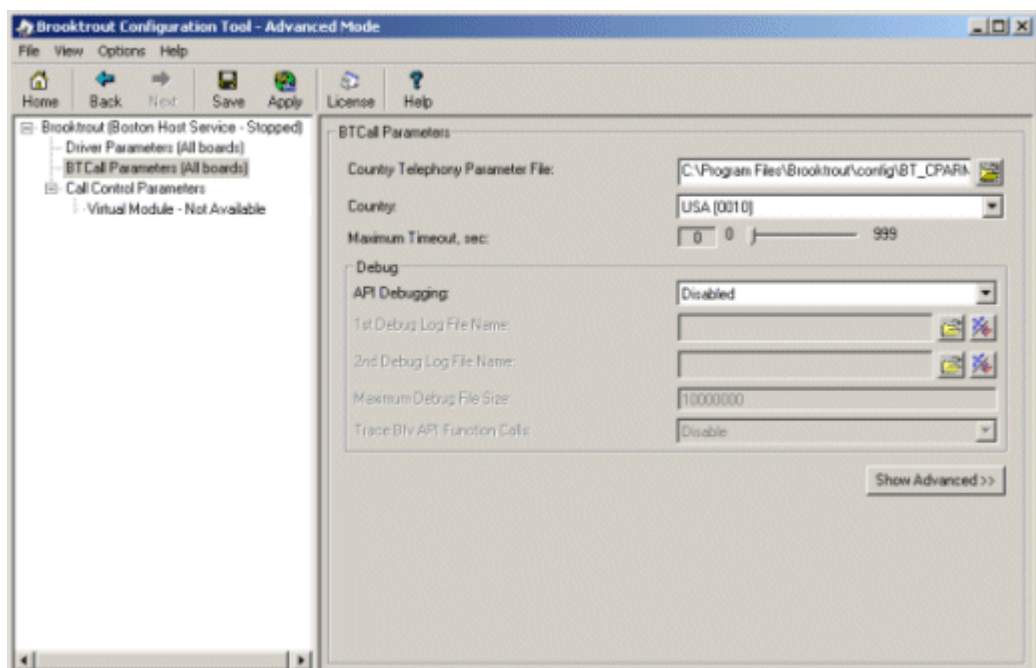
**Note**

After the installation, you can modify your board configuration by launching the [Brooktrout Configuration Tool](#). For this, run the `configtool.exe` program located in the `%ProgramFiles%\Brooktrout\bin` directory. If you need to change boards or add a new one, run `vsi-boston-config.exe` under `\VSI-FAX\FaxServer\bin\` in the installation directory.

SR140 configuration on Windows

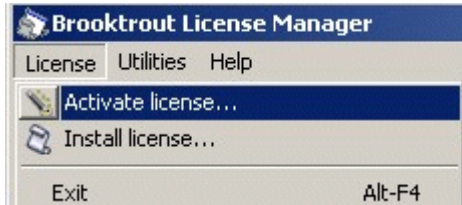
After the steps described in [Configuring the Brooktrout driver for TR1034, TruFax boards or SR140](#) (page 18), continue with the steps below if you want to set up **SR140 Fax Software** solution for Fax over IP.

1. In Brooktrout Configuration Tool, click on the [BtCall Parameters \(All boards\)](#) node in the tree view to configure BtCall Parameters as shown below.
 - Check that the [Country Telephony Parameter File](#) field is set to `%ProgramFiles%\brooktrout\config\BT_CPARM.cfg`.
 - Set the [Country](#) field to your country (if you reside in a European country, select [European Community](#))

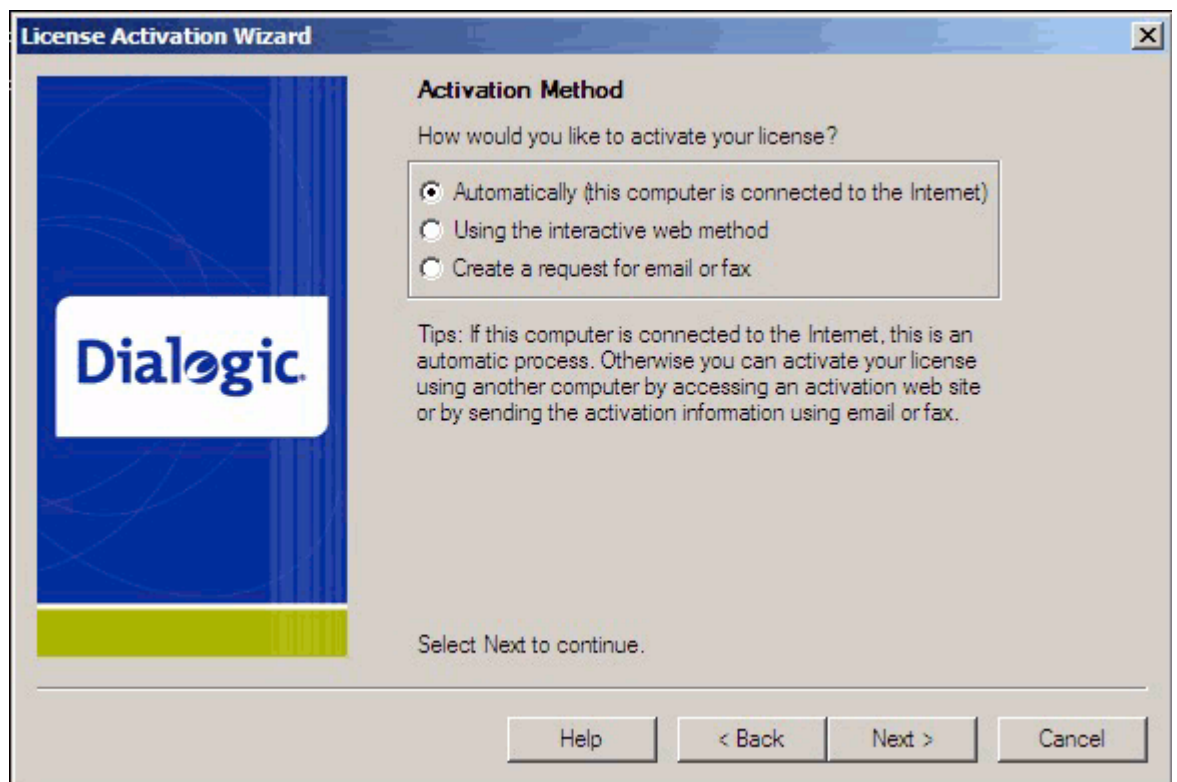


2. To set up Fax over IP with SR140 software solution, you must specify an **SR140 Fax Software license**. Click on the **License** button in Brooktrout Configuration Tool. Brooktrout License Manager is launched. You will use it to display and copy the `NodeId` of your computer and to obtain an SR140 license for this `NodeId`.

- In the Brooktrout License Manager, select **Utilities > Display Nodes Lock**. Double-click to select the Node ID. Right click and select **Copy to copy the Node ID**.
- In the Brooktrout License Manager, select **License > Activate license**.



- The Brooktrout **License Activation Wizard** is launched. Click **Next** on the first screen.
- You have several options to retrieve an SR140 Fax Software license. Select the option you want to use :

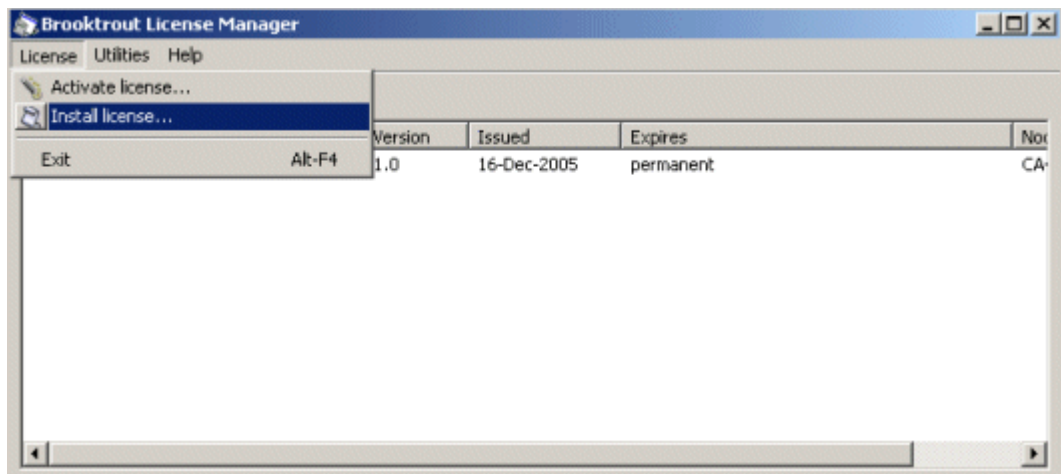


- Choose the first option if your computer is connected to the Internet. This option allows you to automatically download your license file from the Internet.
- Choose the second option to use the Dialogic Website License Activation website.
- Choose the third option to send a license activation request by email or fax to Dialogic and receive your license file in return.

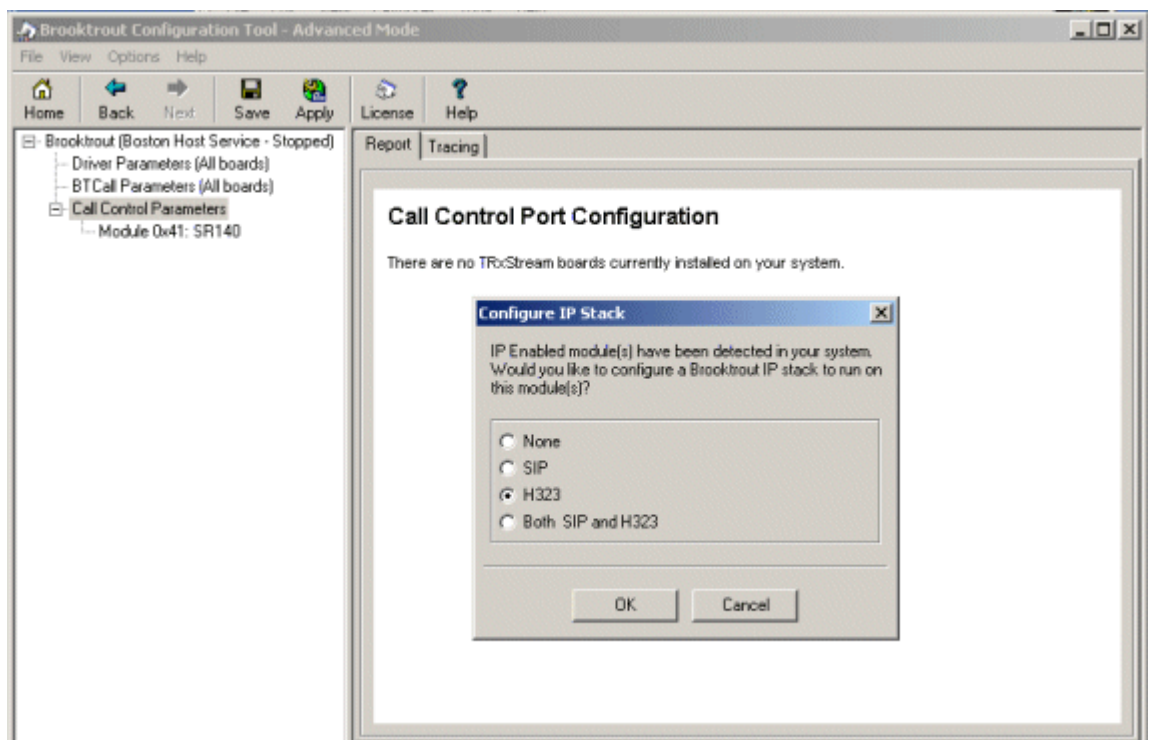
These three options are fully described in the SR140 Windows User Guide.pdf documentation file produced by Dialogic and delivered with VSI-FAX.

- This file is available for download from the VSI-FAX documentation website: <http://doc.esker.com/vsi61>. Go to **Other formats**.
- This file is available in the `\docs` folder on the VSI-FAX CD-ROM.
- Complete the License Activation Wizard to request a license.

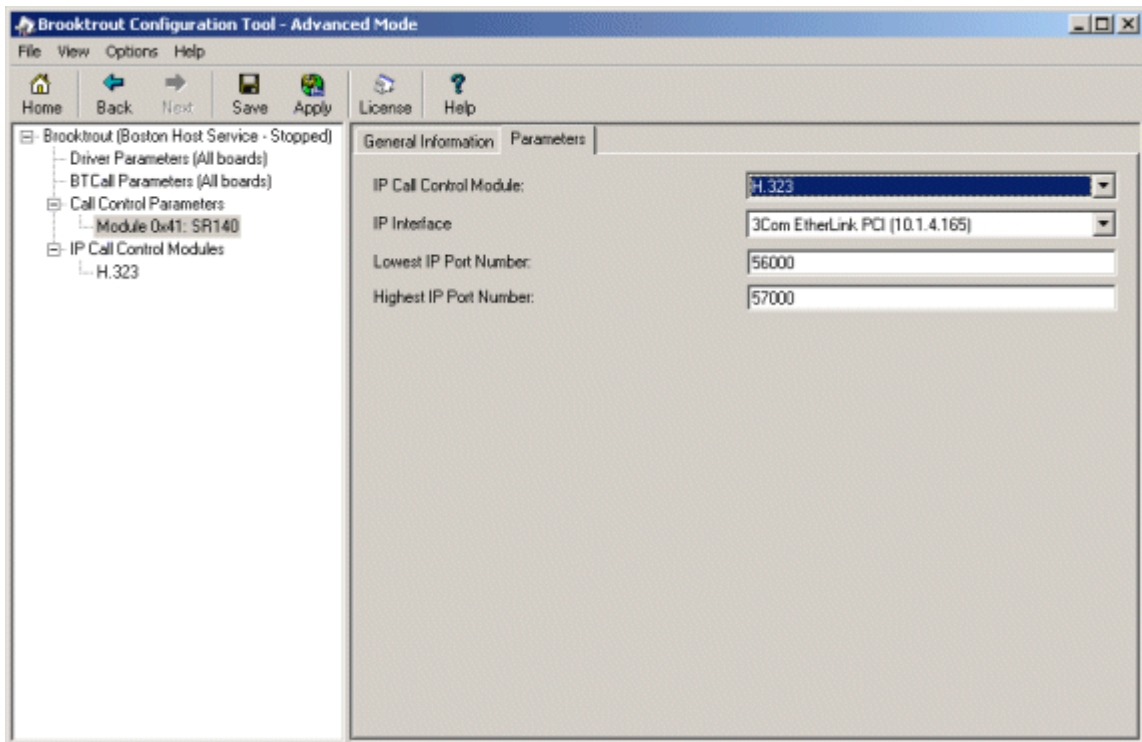
- Once you have received your license file (i.e. .lic file), select [License > Install license](#) in Brooktrout License Manager. Specify your license file and close Brooktrout License Manager.



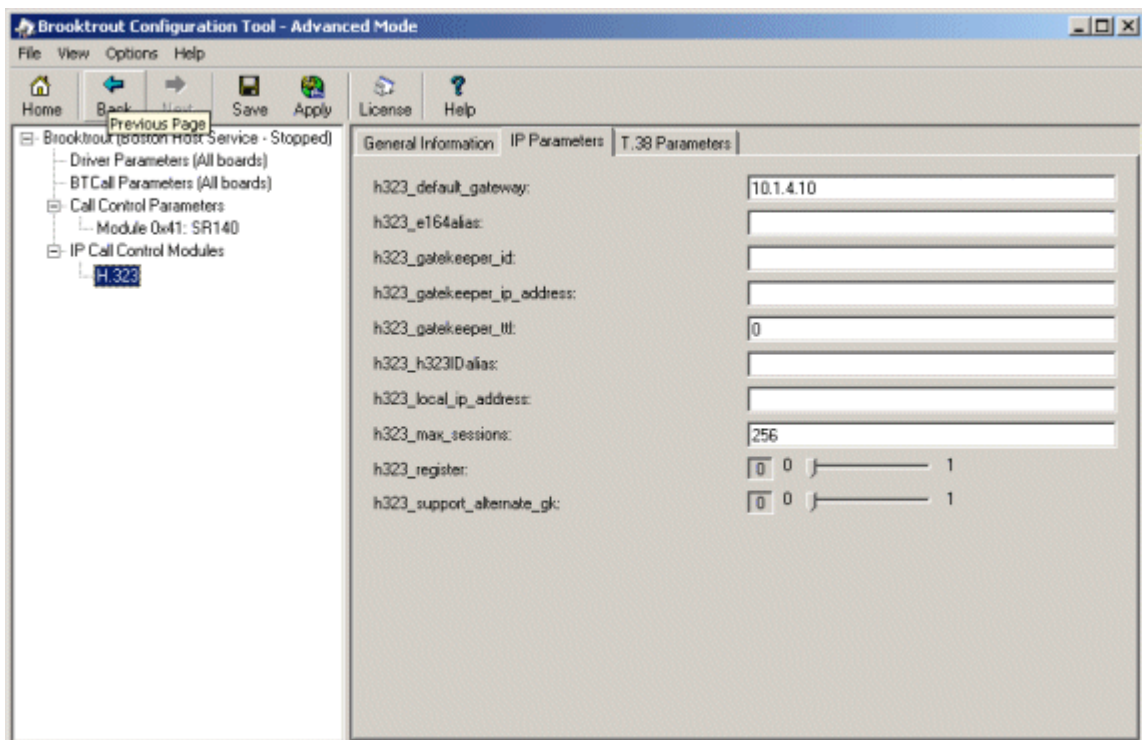
- In the Brooktrout Configuration Tool, check that your license is correctly recognized under [Call Control Parameters](#):



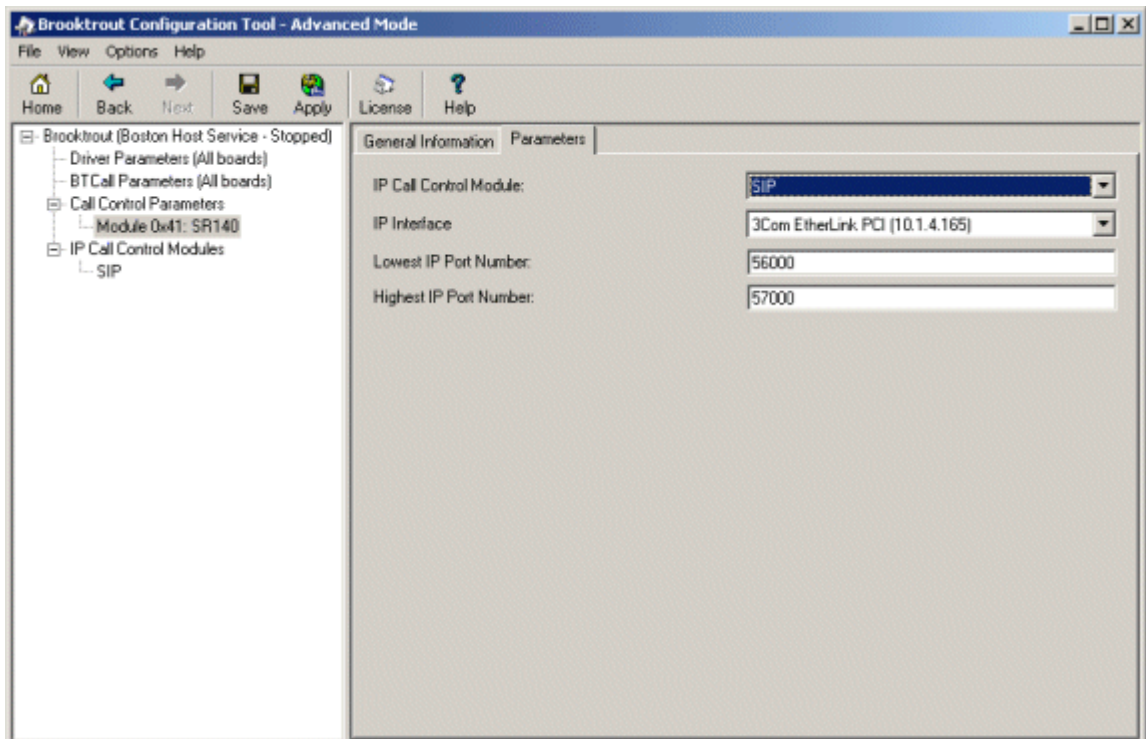
- In the [Configure IP Stack](#) dialog box, select [SIP](#) or [H323](#) depending on which Brooktrout stack you want to use and click [OK](#).
- (if you selected [H323](#) in the [IP Stack](#) dialog box) To configure the Brooktrout [H323](#) stack, expand the [Call Control Parameters](#) node in the tree view, click the [SR140](#) item (e.g. Module 0x41: SR140), open the [Parameters](#) tab in the right pane, select [H.323](#) in the [IP Call Control Module](#) combo box, and select the [IP Interface](#) to use as shown below:



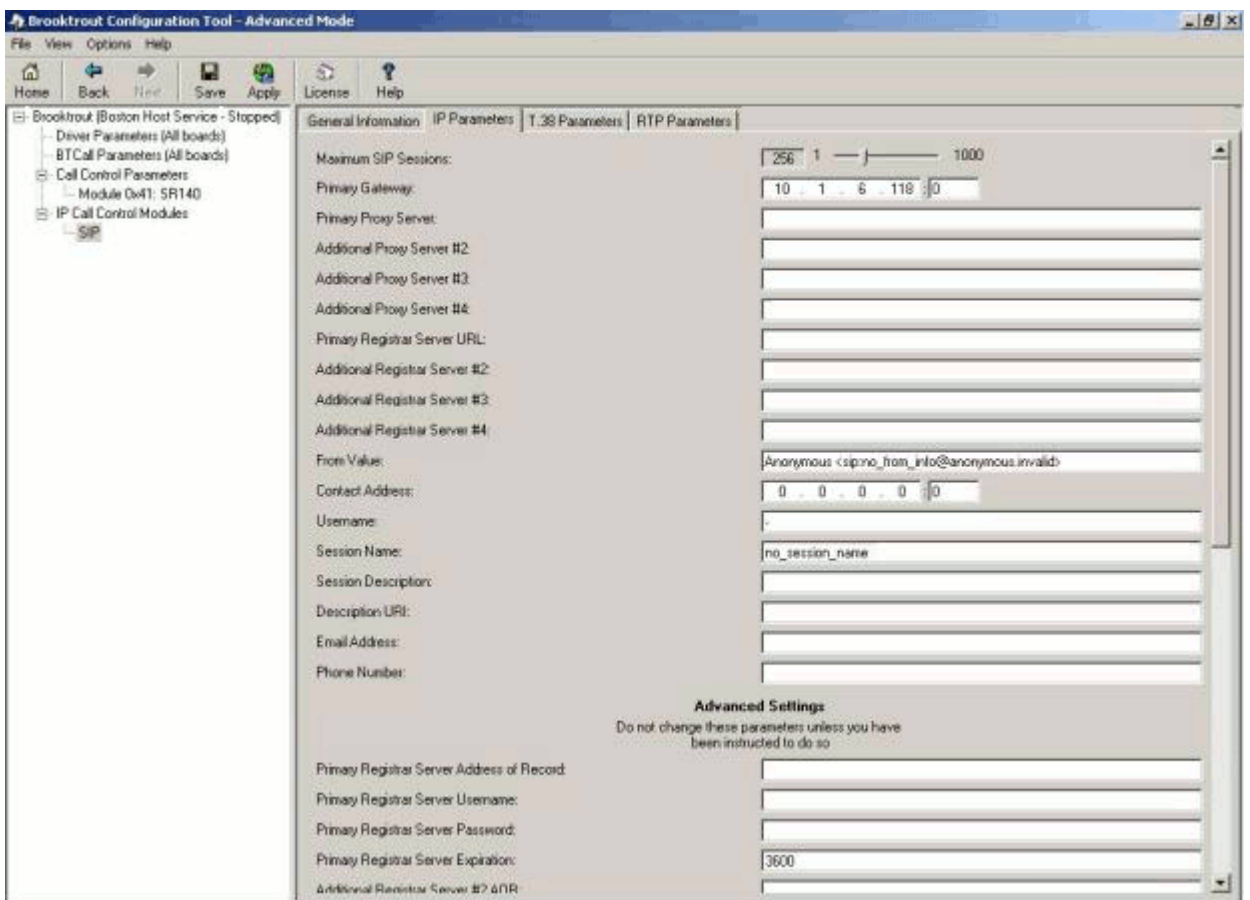
Then expand the **IP Call Control Modules** node in the tree view, and select **H.323**. In the right pane, open the **IP Parameters** tab, and enter the **default gateway** as shown below:




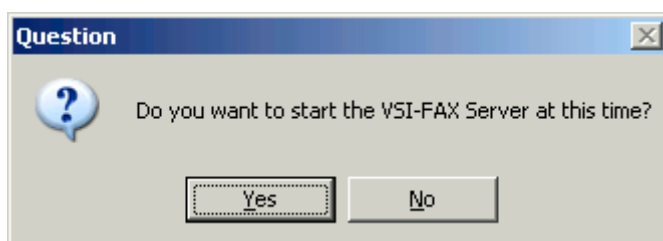
5. (if you selected **SIP** in the **IP Stack** dialog box) To configure the Brooktrout **SIP** stack, expand the **Call Control Parameters** node in the tree view, click the **SR140** item (e.g. Module 0x41: SR140), open the **Parameters** tab in the right pane, select **SIP** in the **IP Call Control Module** combo box, and select the **IP Interface** to use as shown below:



Then expand the **IP Call Control Modules** node in the tree view, and select **SIP**. In the right pane, open the **IP Parameters** tab, and enter the **Primary Gateway** as shown below:



6. IMPORTANT: Click the [Apply](#) button () in the toolbar to apply your configuration. You can see a progress bar during configuration update.
7. Once your configuration has been applied, select [File](#) > [Exit](#) to quit the Brooktrout Configuration Tool.
8. A summary screen displays. Click [Next](#) to complete.
9. If you have launched the Brooktrout TR1034-SR140 drivers installation from VSI-FAX Server's main setup, you are asked whether to start the VSI-FAX Server.



10. Click [Yes](#) to start VSI-FAX Server.
11. Click [Finish](#) on the final summary screen to complete.

Notes

To reference each available channel, VSI-FAX uses Brooktrout logical numbering: number of the SR140 module (e.g. 65) followed by -2, -3, -4, etc. depending on the number of work channels available on this SR140 module). Consider the example below:

```
vfxadmin device -l
```

Name	Description	FIM	ena	snd	rcv	Device
ch00	SR140 mod 65 ch 2	bm	yes	yes	yes	ch65-2 (master)
ch01	SR140 mod 65 ch 3	bm	yes	yes	yes	ch65-3 (slave of ch00)
ch02	SR140 mod 65 ch 4	bm	yes	yes	yes	ch65-4 (slave of ch00)
ch03	SR140 mod 65 ch 5	bm	yes	yes	yes	ch65-5 (slave of ch00)
ch04	SR140 mod 65 ch 6	bm	yes	yes	yes	ch65-6 (slave of ch00)
ch05	SR140 mod 65 ch 7	bm	yes	yes	yes	ch65-7 (slave of ch00)
ch06	SR140 mod 65 ch 8	bm	yes	yes	yes	ch65-8 (slave of ch00)
ch07	SR140 mod 65 ch 9	bm	yes	yes	yes	ch65-9 (slave of ch00)
ch08	SR140 mod 65 ch 10	bm	yes	yes	yes	ch65-10 (slave of ch00)
ch09	SR140 mod 65 ch 11	bm	yes	yes	yes	ch65-11 (slave of ch00)
ch10	SR140 mod 65 ch 12	bm	yes	yes	yes	ch65-12 (slave of ch00)
ch11	SR140 mod 65 ch 13	bm	yes	yes	yes	ch65-13 (slave of ch00)

After the installation, you can modify your SR140 Fax Software configuration by launching the [Brooktrout Configuration Tool](#). For this, run the `configtool.exe` program located in the `%ProgramFiles%\Brooktrout\bin` directory. If you need to add a physical board, run `vsi-boston-config.exe` under `\VSI-FAX\FaxServer\bin\` in the installation directory.

Troubleshooting

If you experience problems with SR140 on a Windows Server 2008 platform, check the firewall rules and ensure that these rules allow the communication with the SIP or H323 protocol.



Installing Brooktrout drivers on Unix/Linux

VSI-FAX supports Dialogic® Brooktrout® TR1034 boards, TruFax boards and SR140 software on a UNIX/Linux platform. Follow the roadmap that corresponds to the type of UNIX/Linux fax system you have chosen to set up on your UNIX/Linux platform.

TR1034, TruFax boards on Unix/Linux roadmap

To set up VSI-FAX with Dialogic® Brooktrout® TR1034 boards, TruFax boards on a UNIX/Linux platform, you have to follow these main steps:

1. Install VSI-FAX Server. Refer to [Installing VSI-FAX Server on Unix/Linux](#) (page 35).
2. Install the Brooktrout drivers and configure your fax board. Refer to [Installing Brooktrout drivers and configuring TR1034 or TruFax boards on Unix/Linux](#) (page 36).

To learn how you can modify your board configuration after the installation, refer to [Modifying the Brooktrout board or SR140 configuration on Unix/Linux](#) (page 45).

For information about uninstallation, refer to [Uninstalling Brooktrout drivers on Unix/Linux](#) (page 45). Installing Brooktrout SR140 on UNIX/Linux.

SR140 Fax Software on Unix/Linux roadmap

To set up VSI-FAX with Dialogic® Brooktrout® SR140 software on a UNIX/Linux platform, you have to follow these main steps:

1. Install VSI-FAX Server. Refer to [Installing VSI-FAX Server on Unix/Linux](#) (page 35).
2. Install the Brooktrout drivers:
 1. Launch the installation of the Brooktrout drivers for SR140.
 2. The drivers setup retrieves the `NodeId` of your computer for you. With this node ID, you can obtain an SR140 Fax Software license from the Dialogic web site and get a license file.
 3. Continue with the Brooktrout drivers installation: activate your license and configure SR140 fax software on your computer.

For details, refer to [Installing Brooktrout drivers and configuring SR140 on Unix/Linux](#) (page 39).

For information about uninstallation, refer to [Uninstalling Brooktrout drivers on Unix/Linux](#) (page 45).

Installing VSI-FAX Server on Unix/Linux

You must install VSI-FAX Server on the UNIX/Linux platform before installing the Brooktrout drivers.

The explanations below only lists the main steps of the installation under Unix/Linux platform with the CD-ROM. If you need more details on the steps, information about installing the Fax Server using a downloaded file, refer to *Installing VSI-FAX Server on Unix/Linux* in the [Installation and Administration](#) documentation.

1. Mount the CD-ROM drive.
2. Change directory to the CD-ROM mount point by entering:
`cd /mnt/cdrom`
3. Run the installation program by entering:
`./install.sh`
4. The list of available packages appears:

```
Available packages are:
s) Fax Server
v) Virtual Fax Server
a) Fax Client APIs
b) Dialogic Brooktrout TR1034-SR140 drivers
*) All packages
Q) quit
```


Enter `s` to install the Fax Server.
5. The installation program will guide you through the remainder of the fax server installation. Follow the on-screen instructions or refer to *Installing VSI-FAX Server on Unix/Linux* in the [Installation and Administration](#) documentation.

**Tip**

The installation program will ask if you want to start the VSI-FAX Admin Server and Fax Server. We strongly suggest that you start these tasks. Otherwise, you will need to manually start them before you can test the fax server.

Proceed with the next step that consists in installing the Brooktrout drivers package:

- To use a TR1034 or TruFax board, refer to [Installing Brooktrout drivers and configuring TR1034 or TruFax boards on Unix/Linux](#) (page 36).
- To use SR140, refer to [Installing Brooktrout drivers and configuring SR140 on Unix/Linux](#) (page 39).

Installing Brooktrout drivers and configuring TR1034 or TruFax boards on Unix/Linux

After [installing the Fax Server](#), follow the steps below to install the Brooktrout drivers and configure a TR1034 or TruFax board on your Unix/Linux platform:

1. Run the installation program again by entering `./install.sh`.
2. The list of available packages appears:

```
Available packages are:
s) Fax Server
v) Virtual Fax Server
a) Fax Client APIs
b) Dialogic Brooktrout TR1034-SR140 drivers
*) All packages
Q) quit
```


Enter `b` to install the Brooktrout drivers for TR1034 or TruFax boards.

3. Enter the name of the directory to extract the drivers install files into. This directory must have at least 60 MB free. (The default location is `/tmp`)
4. Check the installation path. (The default location is `/usr/vsifax`).
5. Answer yes when prompted to shut down running VSI-FAX servers.
6. If you were using a Brooktrout board with a former version of VSI-FAX, we recommend that you answer no when prompted whether you want to keep the existing configuration. This way you will benefit from the new version's enhancements when re-configuring your board.
7. Services are shut down and VSI-FAX Brooktrout TR1034-SR140 drivers are installed:

```
Installing VSI-FAX Brooktrout TR1034-SR140 drivers
.....
Installing the Boston driver
Installing Brooktrout Boston Device Driver Version 6.0.0
Configuring Boston driver:
    Max PCI hw modules 16
    Phys buf size 32768
    App buf size 10240
    Machine ID 1
    History disabled
The Brooktrout Boston Driver has been installed on your system.
```

Dialogic only supports official kernel patches as released by Red Hat. If you are installing VSI-FAX on a kernel version that Dialogic does not support, the VSI-FAX Brooktrout TR1034-SR140 drivers **cannot** be installed and you are prompted to recompile the driver:

```
Installing VSI-FAX Brooktrout TR1034-SR140 drivers
.....
Installing the Boston driver...
Installing Brooktrout Boston Device Driver Version 6.0.0
Previously installed driver being removed.
Removing previously installed driver...
Configuring Boston driver:
    Max PCI hw modules 16
    Phys buf size 32768
    App buf size 10240
    Machine ID 1
    History disabled
Support for current kernel version 2.6.18-92.el5 not found.
Sorry, but the Brooktrout installation script must abort.
```

By default, the support for your current kernel version is not included. You need to recompile the driver so it can operate with the kernel currently running on your system.

Please follow the instructions provided in the topic 'Recompiling on Linux Platforms' in the Fax Boards and Fax Drivers Installation guide. The source files that will let you recompile the driver have been installed under `/usr/sys/boston/kernel`. Once the driver has been successfully recompiled, please resume the setup procedure by relaunching `/usr/vsifax/sbin/vsi-boston-config.sh`

Installation aborted.

If you are in this case, follow the steps described in [Recompiling on Linux platforms](#) (page 43) and resume the setup procedure by relaunching `$VSIFAX/sbin/vsi-boston-config.sh`.

8. When running the installation on **Red Hat Enterprise Linux ES/AS 5.0**, you are prompted to allow the installation program to execute certain commands in order to grant required permissions to the Brooktrout libraries:

```
SELinux is enabled and set to 'Enforcing' on this server. It will
prevent bostlib_mt.so and other Dialogic-supplied shared libraries
from loading because they require text relocation, which is very
common for third-party shared libraries.
```

The setup has to run these commands to allow loading the Dialogic daemon:

```
chcon -t textrel_shlib_t /usr/sys/boston/lib/4.1/bostlib_mt.so
chcon -t textrel_shlib_t /usr/sys/boston/lib/4.1/brkth323_mt.so
chcon -t textrel_shlib_t /usr/sys/boston/lib/4.1/brktsip_mt.so
chcon -t textrel_shlib_t /usr/sys/boston/lib/4.1/bostvb.so
```

Can the setup run the above commands ? (y/n) [y] :

When you see the above prompt, answer yes.

Can the setup run the above commands ? (y/n) [y] : **y**

If you answer no, the installation will abort after displaying the following message:

Can the setup run the above commands ? (y/n) [y] : **n**

The setup will abort because the listed libraries have not text relocation attributes.

9. When the Brooktrout Boston Driver has been installed on your machine, the list of available boards appears:

Select the Dialogic Brooktrout board or SR140 Fax Software to configure:

```
1) TR1034 - T1 - 24 channels
2) TR1034 - T1 - 16 channels
3) TR1034 - T1 - 8 channels
4) TR1034 - T1 - 4 channels
5) TR1034 - E1 - 30 channels
6) TR1034 - E1 - 20 channels
7) TR1034 - E1 - 16 channels
8) TR1034 - E1 - 10 channels
9) TR1034 - E1 - 8 channels
10) TR1034 - E1 - 4 channels
11) TR1034 - Analog - 8 channels
12) TR1034 - Analog - 4 channels
13) TR1034 - Analog - 2 channels
14) TruFax - Analog - 2 channels
15) TruFax - Analog - 1 channel
16) TR1034 - BRI - 4 channels
17) TR1034 - BRI - 2 channels
18) TruFax - BRI - 4 channels
19) TruFax - BRI - 2 channels
20) SR140 - IP - The number of channels depends on the license
q) Quit
```

Select your board type.

10. Select the circuit type to use. Here are the options that may be available to you depending on your board type:

```
0 Robbed-bit (RBS)
1 ISDN (PRI)
2 SIP (IP)
3 H323 (IP)
q Quit
```

11. Select your Brooktrout board module number.



Note

The module number is set on the board. The default module number is 2, and it is most likely to be used if you have only one board installed.

12. If you have selected SIP or H323 above, enter the information needed to configure the IP interface of the board:

```
board ip address
board ip mask
board ip gateway
board ip broadcast
```

13. To configure the **SIP** stack, enter the SIP default gateway.

To configure the **H323** stack, enter the H323 default gateway and optionally your H323 gatekeeper ip address if you want to use it.

Your board is now installed.

14. Answer yes when asked if you want to start automatically the VSI-FAX Brooktrout TR1034 drivers at boot time.
15. Answer yes when asked if you want to start the VSI-FAX Admin Server.
16. Answer yes when asked if you want to start the VSI-FAX Fax Server.
17. The fax board configuration is now complete. You can use the `vfstat` command to view the status of each fax line.



Note

Don't be surprised with the numbering scheme that is used when referencing channels within the system. VSI-FAX used to use Brooktrout ordinal channel numbering (number range is $0 \dots n-1$, where n is the number of channels in the system). Now it uses Brooktrout logical numbering (number range is $2 \dots n+1$, where n is the number of work channels on this hardware module). Consider the example below:

Name	Description	FIM	ena	snd	rcv	Device
ch00	TruFax mod 2 ch 2	bm	yes	yes	yes	ch2-2
ch01	TruFax mod 2 ch 3	bm	yes	yes	yes	ch2-3
ch02	TruFax mod 2 ch 4	bm	yes	yes	yes	ch2-4
ch03	TruFax mod 2 ch 5	bm	yes	yes	yes	ch2-5
FoDC	Fax on Demand	et	yes	yes	no	N/A
FoDC-hold	Fax on Demand (hold)	yes	yes	no	no	N/A
lb	LoopBack	lb	yes	yes	no	N/A
lcr	LCR hold queue	hold	no	no	no	N/A
sm	SendMail	sm	yes	yes	no	N/A

Installing Brooktrout drivers and configuring SR140 on Unix/Linux

After [installing the Fax Server](#), you must [launch the Brooktrout drivers installation](#), [obtain an SR140 Fax Software license](#) with the NodeID that is retrieved by the drivers installation program, and [complete the drivers installation](#) (activate your license and configure SR140).

Step 1: Launch the Brooktrout drivers installation

1. Run the installation program again by entering `./install.sh`.
2. The list of available packages appears:

```
Available packages are:
s) Fax Server
v) Virtual Fax Server
a) Fax Client APIs
b) Dialogic Brooktrout TR1034-SR140 drivers
*) All packages
Q) quit
```

Enter `b` to install the Brooktrout drivers for SR140.

3. Enter the name of the directory to extract the drivers install files into. This directory must have at least 60 MB free. (The default location is `/tmp`).
4. Check the installation path. (The default location is `/usr/vsifax`).
5. Answer yes when prompted to shut down running VSI-FAX servers.

6. Services are shut down and VSI-FAX Brooktrout TR1034-SR140 drivers are installed:

```
Installing VSI-FAX Brooktrout TR1034-SR140 drivers
.....
Installing the Boston driver
Installing Brooktrout Boston Device Driver Version 6.0.0
Configuring Boston driver:
    Max PCI hw modules 16
    Phys buf size 32768
    App buf size 10240
    Machine ID 1
    History disabled
The Brooktrout Boston Driver has been installed on your system.
```

Dialogic only supports official kernel patches as released by Red Hat. If you are installing VSI-FAX on a kernel version that Dialogic does not support, the VSI-FAX Brooktrout TR1034-SR140 drivers **cannot** be installed and you are prompted to recompile the driver:

```
Installing VSI-FAX Brooktrout TR1034-SR140 drivers
.....
Installing the Boston driver...
Installing Brooktrout Boston Device Driver Version 6.0.0
Previously installed driver being removed.
Removing previously installed driver...
Configuring Boston driver:
    Max PCI hw modules 16
    Phys buf size 32768
    App buf size 10240
    Machine ID 1
    History disabled
Support for current kernel version 2.6.18-92.el5 not found.
Sorry, but the Brooktrout installation script must abort.
```

By default, the support for your current kernel version is not included. You need to recompile the driver so it can operate with the kernel currently running on your system.

Please follow the instructions provided in the topic 'Recompiling on Linux Platforms' in the Fax Boards and Fax Drivers Installation guide. The source files that will let you recompile the driver have been installed under /usr/sys/boston/kernel. Once the driver has been successfully recompiled, please resume the setup procedure by relaunching /usr/vsifax/lbin/vsi-boston-config.sh

Installation aborted.

If you are in this case, follow the steps described in [Recompiling on Linux platforms](#) (page 43) and resume the setup procedure by relaunching \$VSI-FAX/lbin/vsi-boston-config.sh.

7. When running the installation on **Red Hat Enterprise Linux ES/AS 5.0**, you are prompted to allow the installation program to execute certain commands in order to grant required permissions to the Brooktrout libraries:

```
SELinux is enabled and set to 'Enforcing' on this server. It will
prevent bostlib_mt.so and other Dialogic-supplied shared libraries
from loading because they require text relocation, which is very
common for third-party shared libraries.
```

The setup has to run these commands to allow loading the Dialogic daemon:

```
chcon -t textrel_shlib_t /usr/sys/boston/lib/4.1/bostlib_mt.so
chcon -t textrel_shlib_t /usr/sys/boston/lib/4.1/brkth323_mt.so
chcon -t textrel_shlib_t /usr/sys/boston/lib/4.1/brktsip_mt.so
chcon -t textrel_shlib_t /usr/sys/boston/lib/4.1/bostvb.so
```

Can the setup run the above commands ? (y/n) [y] :

When you see the above prompt, answer yes.

Can the setup run the above commands ? (y/n) [y] : **y**

If you answer no, the installation will abort after displaying the following message:

```
Can the setup run the above commands ? (y/n) [y] : n
The setup will abort because the listed libraries have not text relocation
attributes.
```

8. When the Brooktrout Boston Driver has been installed on your machine, the list of available boards appears:

Select the Dialogic Brooktrout board or SR140 Fax Software to configure:

- 1) TR1034 - T1 - 24 channels
- 2) TR1034 - T1 - 16 channels
- 3) TR1034 - T1 - 8 channels
- 4) TR1034 - T1 - 4 channels
- 5) TR1034 - E1 - 30 channels
- 6) TR1034 - E1 - 20 channels
- 7) TR1034 - E1 - 16 channels
- 8) TR1034 - E1 - 10 channels
- 9) TR1034 - E1 - 8 channels
- 10) TR1034 - E1 - 4 channels
- 11) TR1034 - Analog - 8 channels
- 12) TR1034 - Analog - 4 channels
- 13) TR1034 - Analog - 2 channels
- 14) TruFax - Analog - 2 channels
- 15) TruFax - Analog - 1 channel
- 16) TR1034 - BRI - 4 channels
- 17) TR1034 - BRI - 2 channels
- 18) TruFax - BRI - 4 channels
- 19) TruFax - BRI - 2 channels
- 20) SR140 - IP - The number of channels depends on the license
- q) Quit

Enter 20 to install the Brooktrout drivers for SR140 Fax Software.

9. The installation program runs the `/usr/sys/boston/listnodeid` tool to retrieve the NodeId of your computer and displays this NodeId:

```
Did you already generate SR140 Fax Software license for this computer with
NodeId:
```

```
XXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

```
Is this OK? (y/n) [y] :
```

10. Copy the NodeId retrieved by the installation program to the clipboard. You will use this number to obtain your SR140 Fax Software license.
11. Leave the installation program terminal opened if you can and turn to the next step that consists in obtaining an SR140 Fax Software license file. If you already own an SR140 license file for the NodeId retrieved by the installation program, skip the next step and go directly to [Step 3: Complete the Brooktrout drivers installation](#). OR if you cannot leave the installation program terminal opened while you are generating your SR140 Fax Software license, answer no. You will relaunch the drivers installation (`$VSI-FAX/lbin/vsi-boston-config.sh`) and answer yes to the above question when you have your license file.



Note

You can launch the `/usr/sys/boston/listnodeid` tool separately from the Brooktrout drivers installation. You may launch it after installation if you change your machine.

Step 2: Obtain an SR140 Fax Software license

You can obtain an SR140 Fax Software license from the Dialogic website using the NodeId retrieved by the Brooktrout drivers installation program that comes with VSI-FAX. The procedure is described in *Activating a License Using the Web* in the SR140 Linux User Guide.pdf documentation file, produced by Dialogic and delivered with VSI-FAX:

- You can download this Dialogic file from VSI-FAX documentation website: <http://doc.esker.com/vsi61>. Go to [Other formats](#).

- You can open this file from the \docs folder on the VSI-FAX CD-ROM.

Step 3: Complete the Brooktrout drivers installation

- Once you have your license file, return to the Brooktrout drivers installation program at this stage:

```
Did you already generate SR140 Fax Software license for this computer with
Nodeid:
```

```
XXXXXXXXXXXXXXXXXXXX
```

```
Is this OK? (y/n) [y] :
```

Answer yes.

- Enter the source path of your SR140 Fax Software license file, for example, /root/Desktop/licens.lic.
- The installation program displays information on your license:

```
Information from /root/Desktop/licens.lic
```

```
License generated: DD-MM-YYYY
```

```
License for Nodeid: XXXXXXXXXXXXXXXXXXXX
```

```
License node type: VID
```

```
Licensed channels: 60
```

- Enter the number of channels you want to use with the SR140 virtual board.
- Select the IP stack to use: SIP (1) or H323 (2).

```
1 SIP (IP)
```

```
2 H323 (IP)
```

```
q Quit
```

- Enter your network interface name. This information is needed to configure the IP interface. Select either eth0, eth1 or default. If you choose default, you let the SR140 Fax Software find the default network interface and use it for fax over IP.

```
Network interface name = "default"
```

- To configure the **SIP** stack, enter the SIP default gateway.

To configure the **H323** stack, enter the H323 default gateway and optionally your H323 gatekeeper ip address if you want to use it.

- You are asked if you want to configure another board. Answer yes if you want to use a physical board and follow the configuration steps described in [Installing Brooktrout drivers and configuring TR1034 or TruFax boards on Unix/Linux](#) (page 36).
- Answer yes when asked if you want to start automatically the VSI-FAX Brooktrout TR1034-SR140 drivers at boot time.
- Answer yes when asked if you want to start the VSI-FAX Admin Server.
- Answer yes when asked if you want to start the VSI-FAX Fax Server.
- The SR140 configuration is now complete. You can use the `vfxadmin device -l` command to check that your SR140 license has been correctly activated and view the status of each channel.



Note

To reference each available channel, VSI-FAX uses Brooktrout logical numbering: number of the SR140 module (e.g. 65) followed by -2, -3, -4, etc. depending on the number of work channels available on this SR140 module). Consider the example below:

```
vfxadmin device -l
```

Name	Description	FIM	ena	snd	rcv	Device
ch00	SR140 mod 65 ch 2	bm	yes	yes	yes	ch65-2 (master)
ch01	SR140 mod 65 ch 3	bm	yes	yes	yes	ch65-3 (slave of ch00)
ch02	SR140 mod 65 ch 4	bm	yes	yes	yes	ch65-4 (slave of ch00)
ch03	SR140 mod 65 ch 5	bm	yes	yes	yes	ch65-5 (slave of ch00)
ch04	SR140 mod 65 ch 6	bm	yes	yes	yes	ch65-6 (slave of ch00)
ch05	SR140 mod 65 ch 7	bm	yes	yes	yes	ch65-7 (slave of ch00)

ch06	SR140 mod 65 ch 8	bm	yes	yes	yes	ch65-8	(slave of ch00)
ch07	SR140 mod 65 ch 9	bm	yes	yes	yes	ch65-9	(slave of ch00)
ch08	SR140 mod 65 ch 10	bm	yes	yes	yes	ch65-10	(slave of ch00)
ch09	SR140 mod 65 ch 11	bm	yes	yes	yes	ch65-11	(slave of ch00)
ch10	SR140 mod 65 ch 12	bm	yes	yes	yes	ch65-12	(slave of ch00)
ch11	SR140 mod 65 ch 13	bm	yes	yes	yes	ch65-13	(slave of ch00)

Recompiling on Linux platforms

Use the instructions below to recompile the Boston driver on your Linux platform so that this driver can operate on your platform.

When

You need to follow the steps below if you are installing VSI-FAX on a kernel patch version of **Red Hat Enterprise Linux ES/AS 4.0** or **5.0** and you have not been able to complete the installation of the Brooktrout Boston Device Driver Version 6.0.0 from the VSI-FAX Brooktrout TR1034-SR140 installation program.

Dialogic does not provide a Brooktrout driver package for your Linux OS kernel patch version. By recompiling the Boston driver you will build a driver package that will run on your system.

How

To build a Dialogic® Brooktrout® driver for your kernel patch version:

1. Run the VSI-FAX Brooktrout TR1034-SR140 installation program as described in one of the following topics depending on the fax solution you want to set up:
 - [Installing Brooktrout drivers and configuring TR1034 or TruFax boards on Unix/Linux](#) (page 36) or
 - [Installing Brooktrout drivers and configuring SR140 on Unix/Linux](#) (page 39)
2. After the following prompt:

```
Installing VSI-FAX Brooktrout TR1034-SR140 drivers
.....
Installing the Boston driver...
Installing Brooktrout Boston Device Driver Version 6.0.0
Previously installed driver being removed.
Removing previously installed driver...
Configuring Boston driver:
    Max PCI hw modules 16
    Phys buf size 32768
    App buf size 10240
    Machine ID 1
    History disabled
Support for current kernel version 2.6.18-92.el5 not found.
Sorry, but the Brooktrout installation script must abort.
```

By default, the support for your current kernel version is not included. You need to recompile the driver so it can operate with the kernel currently running on your system.

Please follow the instructions provided in the topic 'Recompiling on Linux Platforms' in the Fax Boards and Fax Drivers Installation guide. The source files that will let you recompile the driver have been installed

under `/usr/sys/boston/kernel`. Once the driver has been successfully recompiled, please resume the setup procedure by relaunching `/usr/vsifax/sbin/vsi-boston-config.sh`

Installation aborted.

The **source files** that will let you recompile the driver are **located in** the following directory:
`/usr/sys/boston/kernel`

3. To be able to build a Dialogic® Brooktrout® driver for your system, install the kernel source, the compiler, and other standard development tools on the system.
4. Once you have every tools you need to recompile, change directory to `/usr/sys/boston/kernel` using a `cd` command.
5. At this location, enter the following at the command prompt:

```
make -f Makefile.kerndep
```

This command performs several steps.

- Determines what the base Red Hat release is that the booted kernel is based on, what the kernel version is that corresponds to the base release, and what the variant and architecture are.
 - Compiles the source file `kerndep.c` on the current booted kernel setup.
 - Links the resulting object file with the `bostbase.a` file from the directory corresponding to the base kernel version for the current variant and architecture.
 - Puts the resulting driver binary into an appropriate `kvers` subdirectory for the actual kernel version in use.
6. After compiling the driver, relaunch `$VSIFAX/sbin/vsi-boston-config.sh` and complete the installation procedure as described in one of the following topics depending on the fax solution you want to set up:
 - [Installing Brooktrout drivers and configuring TR1034 or TruFax boards on Unix/Linux](#) (page 36) or
 - [Installing Brooktrout drivers and configuring SR140 on Unix/Linux](#) (page 39)



Note

If the kernel source is not installed in a standard location, use the optional `KERNEL_SOURCE=<dir>` command line option to specify the kernel source location to the `make` utility.

For Red Hat Linux releases ES/AS 3.0 and earlier

The kernel source is the package whose name is of the form `kernel-source-<version>`, in the file `kernel-source-<version>.i386.rpm`.

This package is automatically installed if you tell the Linux installation program to install everything.

For Red Hat Linux releases ES/AS 4.0 and later

The kernel source itself is not required; instead, a **development kit** is required. This kit is in the package whose name is of the form `kernel-devel-<version>`, in the file `kernel-devel-<version>.i686.rpm` or `kernel-smp-devel-<version>.i686.rpm`.

This kit is automatically installed if you tell the Linux installation program to install everything. In this case, `KERNEL_SOURCE` should point to the appropriate subdirectory of `/usr/src/kernels` which would normally be one of `<version>-i686` or `<version>-smp-i686`.

Modifying the Brooktrout board or SR140 configuration on Unix/Linux

The configuration of your Brooktrout board (or virtual board in case of the SR140 Fax Software) is stored in the following directory:

```
/usr/sys/boston
```

This directory contains various configuration files, binaries and tools used by the fax board or SR140 Fax Software.

- The global settings used by your board or the SR140 Fax Software are stored in the `btcall.cfg` configuration file.
- The IP interface parameters of your board or SR140 Fax Software are stored in the `callctrl.cfg` configuration file.

Refer to [Brooktrout configuration files](#) (page 47) for details on all the parameters in these two files.

To modify your (virtual) board configuration or add a new board:

1. Run the `vsi-boston-config.sh` shell file.
2. Answer yes when prompted to stop VSI-FAX Admin Server and VSI-FAX Fax Server.
3. Answer no when asked if you want to keep your existing configuration.
4. You are then prompted with the same questions as during first configuration:
 - For a physical board: board type, circuit type, module number, IP interface parameters if applicable. For details, refer to [Installing Brooktrout drivers and configuring TR1034 or TruFax boards on Unix/Linux](#) (page 36).
 - For SR140 Fax Software: license file, number of channels to use, IP stack to use, network interface name, etc. For details, refer to [Installing Brooktrout drivers and configuring SR140 on Unix/Linux](#) (page 39).
5. When needed, the VSI-FAX Fax Server is automatically restarted via the `vsibost.sh start` command to ensure your configuration is taken into account.
6. Run the following command to be sure that your (virtual) board is correctly reinitialized:


```
vsisched.sh start
```

Uninstalling Brooktrout drivers on Unix/Linux

To remove the TR1034-SR140 Brooktrout drivers from your Unix/Linux platform, run the following shell file:

```
vsi-boston-uninstall.sh
```



Note

This uninstalls the Brooktrout drivers and the fax server's usage of these drivers but this does not uninstall the Fax Server.

Troubleshooting problems with Brooktrout boards and SR140 on Unix/Linux

For the platforms that use Brooktrout SDK version 6.0.0. (i.e. Red Hat Enterprise 4 and Red Hat Enterprise 5), the `vfxsched restart` command does not fully reinitialize the (virtual) fax board. For this reason, you need to issue the following commands each time you need to restart the Fax Server:

1. `vfxsched stop`
2. `vsibost.sh stop` (under `/usr/vsifax/sbin/vsibost.sh`)
3. `vsibost.sh start`
4. `vfxsched start`



Brooktrout configuration files

This section explains the following configuration files for Dialogic Brooktrout **TR1034** boards, **TruFax** boards, and **SR140** software.

Configuration file	Description
btcall	The user-defined configuration file that contains configuration parameters for the API and driver.
callctrl	The call control configuration file is an ASCII file that contains general PCM configuration parameters for all telephony hardware units and static telephony connections to be formed for all modules. It contains the IP interface parameters for Fax over IP (SIP or H323).

The configuration files can be found in the following locations:

- In Unix, `/usr/sys/boston`
- In Windows, `%ProgramFiles%\Brooktrout\config`



Important

To configure TR1034 boards, TruFax boards or SR140 software on Windows, we recommend that you use [Brooktrout Configuration Tool](#) instead of modifying the configuration files manually. For this, run the `configtool.exe` program located in the `%ProgramFiles%\Brooktrout\bin` directory. If you need to change boards or add a new one, run `vsi-boston-config.exe` under `\VSI-FAX\FaxServer\bin\` in the installation directory.

To modify your fax configuration on Unix/Linux platforms, refer to [Modifying the Brooktrout board or SR140 configuration on Unix/Linux](#) (page 45).

Configuration File: btcall.cfg

The `btcall.cfg` file, the user-defined configuration file, contains parameters that set values such as direct memory access (DMA) transfer size or number of direct inward dialing (DID) digits. The parameters in the table below apply to all the supported **TR1034** or **TruFax boards** and to **SR140** software in VSI-FAX.

Keywords define the parameters and may be listed in any order and are case insensitive. Only one keyword per line is permitted. Keywords must be separated from their values—a decimal integer, a hexadecimal integer, or a character string by one or more spaces. Commas, colons, and dashes are not valid keyword separators. The default value is automatically supplied for each missing keyword; keywords that do not match any of the valid keywords are ignored. If a keyword appears more than once, the last occurrence is the one that will take effect.

The API treats any line that begins with the `#` character as a comment and ignores that line. All character strings that represent filenames must consist of printable ASCII characters. Do not include whitespace characters such as space and tabs. If no fax product is listed in the description, the keyword applies to all fax products.

Keyword	Description
---------	-------------

Keyword	Description
agc	<p>Automatic gain control (AGC) method to use during speech recording (in decimal).</p> <ul style="list-style-type: none"> ■ 0=None. ■ 1=Dynamic AGC; levels adjusted during recording. ■ 2=Postrecord AGC; optimal level computed and reported at end of record. <p>Value Type decimal</p> <p>Default value 1</p>
busy_dt_ct	<p>Number of consecutive BUSY1, BUSY2, ROBUSH, or DIALTON call progress values that must occur before BfvLineOriginateCall will terminate with that result.</p> <p>Value Type decimal</p> <p>Default value 1</p>
ced_timeout	<p>The length of time, in 10 ms units, to wait for a fax answer tone (CED tone) from a remote fax machine. This parameter can be set only if changing the wait_for_ced time-out is permitted by the host country. This parameter also controls the amount of time CNG plays. Maximum value is 65535 (655 seconds).</p> <p>Value Type decimal</p> <p>Default value Country dependent; 4000 (40 seconds) in the USA.</p>
country_code	<p>International country code with modifiers. Initial digits (up to 3) identify the host country; the last digit supplies a modifier for properties such as the phone system attached to the board. Ccode.h contains the available country codes.</p> <p>Value Type hex</p> <p>Default value 0010 (USA)</p>
debug	<p>If this keyword is present, API debug mode will be enabled using DEBUG_ALL, after the first call to BfvLineReset, if debug mode is not already enabled by the application. An optional filename may be specified, which will set up a debug function to send output to the specified file, if a debug function was not already set by the application.</p> <p>Value Type string</p>

Keyword	Description
	<p>Default value disabled, stdout</p>
dtmf_thresh	<p>DTMF detection threshold during voice play and record. 0.5 dB units, two's complement. Value is added to the default DTMF threshold of -28dB.</p> <p>Value Type decimal</p> <p>Default value 0 (-28dB)</p>
ecm_enable	<p>ECM (error correction mode) is enabled or disabled. The normal ECM frame size is 256 bytes. You can enable a frame size of 64 bytes, but the fax board uses that frame size on transmit only. On receive, it always uses the frame size the transmitter selects.</p> <ul style="list-style-type: none"> ■ 0 = ECM disabled. ■ 1 = ECM enabled, 256-byte frames. ■ 2 = ECM enabled, 64-byte frames. <p>Value Type decimal</p> <p>Default value 1</p>
eff_pt_caps	<p>Enhanced fax format page types that the channel is permitted to receive.</p> <ul style="list-style-type: none"> ■ 0 = Enhanced fax format reception disabled ■ 1 = JPEG ■ 2 = Full color mode (JPEG) ■ 4 = Reserved for Huffman tables, do not use ■ 8 = 12 bits/pel, otherwise 8 bits/pel (JPEG) ■ 10 = No subsampling (JPEG) ■ 20 = Custom illuminant (JPEG) ■ 40 = Custom Gamut (JPEG) 100 = JBIG 200 = L0 Mode (JBIG) <p>Value Type hex</p> <p>Default value 0</p>
error_enable	<p>Error detection is enabled (1) or disabled (2) during fax reception in non-ECM mode as a decimal digit.</p> <p>Range: 0 to 1</p>

Keyword	Description
	<p>Value Type decimal</p> <p>Default value 1</p>
error_mult	<p>Error multiplication value used to determine if the error percentage on a received page is too high. The number of errors per page is multiplied by this number and the product is divided by 2. If this result exceeds the number of lines on the page, the error percentage per page is too high and an RTN signal is returned to the transmitting station.</p> <p>Value Type decimal</p> <p>Default value 40 (for a 5% error rate)</p>
error_thresh	<p>The error threshold value of n (2n for fine resolution) consecutive bad G3 lines on a received page. A page with errors in this number of consecutive lines is considered bad, regardless of the results from error_mult. An RTN is returned when a "bad" page occurs.</p> <p>Value Type decimal</p> <p>Default value 3</p>
font_file	<p>The name of the file that contains the transmit/convert font for ASCII. An optional font number, indicating the downloadable font to use, can be specified (if no font number is specified, 0 is assumed). The font file must be located in the current directory, or the correct path must be included with its name.</p> <p>Value Type string; decimal can be included and is optional</p> <p>Default value ibmpcps.fz8 (no path) and 0</p>
id_string	<p>Default id string (up to 20 characters long) for fax machines; can be overridden by the BfvFaxSetLocalId function if change to the id string is permitted by the host country.</p> <p>Value Type string</p> <p>Default value 20 spaces</p>
line_compression	<p>Specifies the permitted compression types for fax transmission or reception on the phone line. This specification is independent of the file format specified for transmission or reception. Valid</p>

Keyword	Description
	<p>values are:</p> <ul style="list-style-type: none"> ■ 0 = MH only. ■ 1 = MR or MH. ■ 5 = MMR, MR, or MH. <p>Value Type decimal</p> <p>Default value 5</p>
max_pagelist	<p>The maximum number of pages for which to store results during a call. The last max_pagelist PAGE_RES structures are accessible via the FAX_RES structure if this feature has been enabled.</p> <p>Value Type decimal</p> <p>Default value 30</p>
max_timeout	<p>Specifies the maximum time, in milliseconds, that the API will delay waiting for activity to occur on a board. If any API function allows specification of a timeout value, that value takes precedence. Range:</p> <ul style="list-style-type: none"> ■ 0 to 2000000000, ■ 0 = disable. <p>Value Type decimal</p> <p>Default value 0 (disabled)</p>
max_width	<p>Sets the maximum page width permitted for fax reception. Valid values are:</p> <ul style="list-style-type: none"> ■ 0 = 215mm A4 1728 Normal resolution pixels ■ 1 = 255mm B4 2048 Normal resolution pixels ■ 2 = 303mm A3 2432 Normal resolution pixels 200Hx100V <p>Value Type decimal</p> <p>Default value 0</p>
min_length	<p>Specifies the minimum number of lines required for a fax page received in non-ECM mode. The board considers any fax page with fewer lines invalid and responds with an RTN signal. 10 scan line units; range 0-255.</p>

Keyword	Description
	<p>Value Type decimal</p> <p>Default value 0</p>
missing_wait	<p>Specifies the delay to apply during dialing when the dial string does not contain a w or a , at the start of the dial string or immediately following an initial 8 or 9 50 ms units.</p> <p>Value Type decimal</p> <p>Default value 20 (1 second)</p>
restrict_res	<p>Specifies allowable resolutions for fax reception.</p> <ul style="list-style-type: none"> ■ 0 = only 200H x 100V (normal) ■ 1 = 200H x 200V (fine) ■ 2 = 200H x 400V ■ 4 = 300H x 300V ■ 8 = 400H x 400V <p>Regardless of the value chosen, 200H x 100V (normal) is always allowed.</p> <p>Value Type hex</p> <p>Default value 1</p>
silcompr_start	<p>When silence compression is enabled, silence at the start of recording will be compressed to the time specified, in milliseconds.</p> <p>Value Type decimal</p> <p>Default value 500</p>
silcompr_middle	<p>When silence compression is enabled, silence in the middle of recording will be compressed to the time specified, in milliseconds.</p> <p>Value Type decimal</p> <p>Default value 500</p>

Keyword	Description
subpwdsep	<p>Enables reception of the SUB, PWD, and SEP FSK signals. Applications typically use these signals to direct or validate incoming calls.</p> <p>Value Type hex</p> <p>Default value 0</p>
teleph	<p>The name of the telephony configuration file, which contains telephony hardware configuration information and static telephony connection information. If the file specified by the teleph keyword is present, then the file specified by the digital keyword will not be used. If not, then the digital keyword file will also be checked for.</p> <p>Value Type character string</p> <p>Default value callctrl.cfg</p>
tone/pulse	<p><i>TruFax only.</i> Selects the default dialing type.</p> <p>Value Type string</p> <p>Default value tone</p>
v_play_gain	<p>Specifies the initial gain value for speech playback. A positive value indicates a step up; a negative value indicates a step down. The gain steps are the same as those controlled by BfvSpeechModify. Range: -1 to 3 for TR1034.</p> <p>Value Type decimal</p> <p>Default value 0</p>
v_timeout	<p>CALL_PROTOCOL_VOICE mode only. The maximum time (in seconds) to wait after the last dialed digit for a final call progress result. This applies to the use of BfvLineOriginateCall and BfvLineOrigCallIDB only.</p> <p>Value Type decimal</p> <p>Default value 60 seconds</p>
v34_ci_enable	<p>Enables (1) or disables (0) the ability to detect and send CI in order to enter V.8 mode and V.34</p>

Keyword	Description
	<p>mode after having missed the initial CED tone.</p> <p>Value Type decimal</p> <p>Default value 1</p>
v34_enable	<p>Enables (1) or disables (0) V.34 fax modulation capability, if the hardware and firmware support it.</p> <p>Value Type decimal</p> <p>Default value 1</p>
width_res_behavior	<p>Specifies the action taken as a result of page width or resolution mismatches on fax transmission. Does not affect fax reception. Scaling the fax is not available for all combinations of resolution mismatches.</p> <ul style="list-style-type: none"> ■ 0 = Terminate the call. ■ 1 = Horizontally and vertically scale the fax. ■ 2 = Truncate the page. TruFax boards always truncate or pad the page. <p>Value Type decimal</p> <p>Default value 1</p>

Configuration File: callctrl.cfg

The call control configuration file is an ASCII file. It contains general PCM configuration parameters for all telephony hardware units and static telephony connections to be formed for all modules as well as the IP interface parameters. The parameters below apply to all the supported **TR1034** or **TruFax boards** and to **SR140** software in VSI-FAX.

Global options	
l3l4_trace	■ none = Does not perform a trace operation (default value).
l4l3_trace	■ error = Detects errors and stores them in the specified trace_file.
api_trace	■ warning = Detects warnings and stores them in the specified trace_file.
	■ basic = Stores a simplified trace in the specified trace_file.

Global options	
internal_trace host_module_trace ip_stack_trace	<ul style="list-style-type: none"> ■ verbose = Stores a complete trace of operations in the specified trace_file.
trace_file	Turns on tracing and reports results to the filename specified for this parameter. To turn off tracing, comment this parameter out.
max_trace_files	<p>Specifies the maximum size, in megabytes, allowed for the trace file. If the trace of operations reaches this size, tracing loops back to the start of the file and the continued trace starts overwriting the older trace. 0 = Sets the trace file to an unlimited size.</p> <p>Unit: Megabytes</p> <p>Default value: 10 (megabytes)</p>
max_trace_files	<p>Specifies the maximum number of trace files for the API to retain on the system's file system.</p> <p>When set to a value greater than 1, the API appends a sequence number extension to the file name, starting at 1. If the number of created trace files exceeds the value set for this parameter, the API starts deleting files from the lowest numbered trace log until it frees sufficient disk space to store the last created file. To prevent deleting older files, set the maximum number of trace files to a large number.</p>
set_api	<p>Selects the ISDN layer that the API uses to configure layer configuration parameters that apply to all protocols supported by the module.</p> <ul style="list-style-type: none"> ■ BFV = Causes the API to configure parameters for layer 2 and layer 3 in addition to configuring layer 1 parameters. ■ BSMI = Causes the API to configure parameters only for layer 1. When you specify BSMI as the value for set_api, your application must configure the parameters for layer 2 and layer 3; otherwise, the API ignores these parameters. <p>Default value: BFV</p>
auto_connect	<p>Specifies a Boolean value that determines whether the call control system automatically connects the logical channels and the B-channels on the trunks. Setting this parameter to:</p> <ul style="list-style-type: none"> ■ FALSE = Does not make connections. When you specify this value, the application must make the connections for those Brooktrout modules where you can make connections using software. ■ TRUE = Automatically connects DSP channels and ports. <p>Default value: TRUE</p>
connections	<p>Specifies a filename that contains a list of connections defining the relationship between the source and destination ports. This feature is not supported on analog and BRI boards, except those which also support H.100 (mezzanine board required). If you specify a filename as the value for this parameter, create the file using the following format:</p> <pre>[connect conn_mode src_port_class src_unit src_stream src_slot dest_port_class ... connect conn_mode src_port_class src_unit src_stream src_slot dest_port_class]</pre>

Global options	
	<p>Each of these lines begins with the keyword <code>connect</code>, and is followed in order by the connection mode, source port class, unit, stream, and slot, and the destination port class, unit, stream, and slot. The meanings of these values follow. If you use this parameter to specify connections, the call control ignores any value set in the <code>auto_connect</code> parameter.</p> <p>conn_mode</p> <p>Specifies the relationship between the source (S) and destination (D) ports with one of the following values. The value 7 is normally used.</p> <ul style="list-style-type: none"> ■ 1 = Transmit only ■ 2 = Receive only ■ 3 = Full duplex ■ 7 = Full duplex with signaling ■ 9 = Transmit only, SD inverted ■ A = Receive only, SD inverted ■ B = Full duplex, SD inverted ■ F = Full duplex with signaling, SD inverted <p>src_port_class</p> <p>Specifies the source telephony resource port class. Specify the value in hexadecimal.</p> <ul style="list-style-type: none"> ■ 0 = Channel ■ E = Bus (for example, H.100) ■ F = Network (T1 or E1) <p>src_port_unit</p> <p>Specifies the source resource port unit number for the source port class. If the class is 0 (channel), then the port unit value indicates the logical channel number. (When using Bfv Line Attach, the API sets the ordinal channel value to $n - 2$ where n is the logical channel number.)</p>

Clock Configuration Parameters	
clock_mode	<p>Specifies a value that determines whether the module drives the clock on the CT bus or receives its clocking from the CT bus. Valid values are:</p> <ul style="list-style-type: none"> ■ MASTER = Configures the module to drive the clock on the CT bus. ■ SLAVE = Configures the module to receive clocking from the CT bus. ■ SECOND_MASTER = Use as master if master clock fails. Until the master clock fails, this module receives clocking from the CT bus. <p>Default value: MASTER</p>
clock_source	<p>Specifies the source of the clock used to drive the CT bus. Set this parameter only if you set the value for <code>clock_mode</code> to master. The module derives its clock from:</p> <ul style="list-style-type: none"> ■ Internal= The internal oscillator. ■ TrunkA = The network trunk, port A.

Clock Configuration Parameters	
	<ul style="list-style-type: none"> ■ TrunkB = The network trunk, port B. ■ TrunkC = The network trunk, port C. ■ TrunkD = The network trunk, port D. ■ TrunkE = The network trunk, port E. ■ TrunkF = The network trunk, port F. ■ TrunkG = The network trunk, port G. ■ TrunkH = The network trunk, port H. ■ Netref1 = The H.100/H.110 network reference (1) clock. ■ Netref2 = The H.100/H.110 network reference (2) clock. ■ clock_a = The H.100/H.110 A clock. ■ clock_b = The H.100/H.110 B clock. <p>Default value: TrunkA</p>

Port Configuration Parameters	
port_config	<p>Specifies one of the following values that defines the CT bus or line type to configure for the port.</p> <ul style="list-style-type: none"> ■ INACTIVE = Disabled port ■ ANALOG = Analog line ■ BRI = Basic Rate Interface ■ T1_ISDN = T1 ISDN ■ T1_ROBBED_BIT = T1 RBS ■ E1_ISDN = E1 ISDN ■ E1_R2_CAS = E1 R2 CAS ■ E1_CAS = E1 CAS (not supported in this release) ■ E1_DPNSS = E1 DPNSS (not supported in this release) <p>Default value: INACTIVE</p>
fractional_start_channel	<p>Specifies the zero-based index value of the first channel available on the port. If you do not specify this parameter, the API assumes that the full port is available. When you configure a fractional port, the auto_connect feature only connects the channels in use. The valid values are:</p> <ul style="list-style-type: none"> ■ 0 - 29 = E1 (all types) ■ 0 - 22 = T1 ISDN ■ 0 - 23 = T1 RBS <p>Range: 0 - 29</p> <p>Default value: 0</p>
fractional_channel_count	<p>Specifies a value that indicates the number of channels available on the fractional port.</p>

Port Configuration Parameters	
	<p>Use this parameter in conjunction with the fractional_start_channel parameter.</p> <p>Note: Set this parameter to -1 when not using fractional channels.</p> <p>Setting this parameter to 0 makes zero B-channels available.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> ■ -1 = Indicates that a fractional port is not in use ■ 0 - 29 = Indicates the number of available E1 channels on the fractional port ■ 0 - 22 = Indicates the number of available T1 ISDN channels on the fractional port ■ 0 - 23 = Indicates the number of available T1 RBS channels on the fractional port <p>Range: -1, 0 - 29</p> <p>Default value: -1</p>
wait_for_service_timeout	<p>Specifies a value that indicates the amount of time to wait for a trunk to come into service before returning an error when placing an outbound call. If this timeout expires, the outbound call fails. If the trunk comes into service before this timeout expires, the system places the call normally.</p> <p>Unit: second</p> <p>Range: 0 - 10,000</p> <p>Default value: 10</p>

Configuration Parameters for Analog Ports	
caller_id	<p>Specifies a Boolean value that indicates whether detection of V.23-based caller ID has been enabled. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = Indicates that the port has disabled detection of V.23-based caller ID. ■ TRUE = Indicates that the port has enabled detection of V.23-based caller ID. <p>Default value: TRUE</p>
country	<p>Specifies the name of the file that matches a binary file containing the country coefficients to use for the port.</p> <p>Range: Maximum of 256 characters (_MAX_PATH)</p> <p>Default value: None</p>
flash_hook_duration	<p>Specifies a value that defines the duration of a flash hook signal. This field defines the amount of time to place the line on hook during a flash hook.</p> <p>Unit: 10 ms</p> <p>Range: 1 - 500</p> <p>Default value: 50</p>

Configuration Parameters for Analog Ports	
input_gain	<p>Specifies a value that defines the number of decibels (dB) to increase or decrease the power of the incoming audio signal on the phone line. The valid values are:</p> <ul style="list-style-type: none"> ■ +6 = Increases the amount of gain by +6 dB ■ 0 = Does not increase or decrease the amount of gain ■ -6 = Decreases the amount of gain by -6 dB <p>Unit: 1 dB</p> <p>Range: +6 through -6</p> <p>Default value: 0 dB</p>
loop_reversal_for_connect	<p>Specifies how to interpret a loop reversal signal as an audio path connection indication. The valid values are:</p> <ul style="list-style-type: none"> ■ DISABLED= Ignores loop reversal as an indication of audio path connection. ■ ENABLED = Interprets loop reversal as an indication of audio path connection. <p>Default value: DISABLED</p>
loop_reversal_for_disconnect	<p>Specifies how to interpret a loop reversal signal as a call disconnect indication. The valid values are:</p> <ul style="list-style-type: none"> ■ DISABLED= Ignores loop reversal as a call disconnect signal. ■ ENABLED = Interprets loop reversal as a call disconnect signal. <p>Default value: DISABLED</p>
max_did_digits	<p>Specifies a value that defines the maximum number of DID digits to expect before accepting an incoming call. This parameter is only valid when you set the country_code parameter to JAPAN in the user-defined configuration file. Valid values are:</p> <ul style="list-style-type: none"> ■ 0 = Disables waiting for DID digits ■ 1 - 4 = Specifies the number of digits to expect before accepting an incoming call <p>Range: 0 through 4</p> <p>Default value: 0</p>
missing_wait	<p>Specifies a value that defines the amount of time that the system must pause before dialing after it detects a missing dial initiation character. (In the GUI tool for Windows users, this parameter is called Dial Initiation Character Timeout.) Dial initiation characters are:</p> <ul style="list-style-type: none"> ■ `,' (comma) = Causes a one-second pause ■ `w' = Waits for dial tone ■ `;' (semicolon) = Causes a five-second pause ■ `i' or `l' = Causes a five-second pause <p>Unit: 10 ms</p> <p>Range: 0 through 1000</p>

Configuration Parameters for Analog Ports	
	Default: 100 (1 second)
num_rings	<p>Specifies a value that defines the number of rings the system must detect before the system reports a new incoming call to the application.</p> <p>Range: 1 to 255</p> <p>Default value: 2</p>
output_gain	<p>Specifies a value that defines the number of decibels (dB) to increase or decrease the power of the outgoing audio signal on the phone line. Valid values are:</p> <ul style="list-style-type: none"> ■ +6 = Increases the amount of gain by +6 dB ■ 0 = Does not increase or decrease the amount of gain ■ -6 = Decreases the amount of gain by -6 dB <p>Unit: 1 dB</p> <p>Range: +6 through -6</p> <p>Default value: 0 dB</p>
protocol_file	<p>Specifies the full path and name of the protocol file to load for the analog port. Most of the time a path should be used for this file name. Values include:</p> <ul style="list-style-type: none"> ■ analog_loopstart_europe.lec ■ analog_loopstart_us.lec <p>Makes calls using the specified loop start protocol</p> <p>Default value: analog_loopstart_us.lec</p>
transfer_variant	<p>Specifies the transfer method that the network (refer to the vendor specifications for your switch) runs for call transfers or disables call transfer. Valid values are:</p> <ul style="list-style-type: none"> ■ NONE = Disables call transfer ■ HOOKFLASH = Specifies a hook flash transfer <p>Default value: HOOKFLASH</p>

Configuration Parameters for BRI Ports	
call_type	<p>Specifies the call type to use when making the outbound call. Use one of the following values for this field:</p> <ul style="list-style-type: none"> ■ AUTO = Makes a call using the modem type and then automatically retries the call using the voice type if the other end cannot accept modem calls. ■ MODEM = Makes a modem (3.1 kHz audio) call. This setting provides higher quality audio for the call. ■ SPEECH = Makes a voice call. <p>Default value: AUTO</p>
datalink	Defines whether to configure the port's call switch for a point-to-point or point-to-

Configuration Parameters for BRI Ports	
	<p>multipoint circuit. Valid values are:</p> <ul style="list-style-type: none"> ■ AUTO = Automatically detects the datalink setting ■ POINT2POINT = Configures for a point-to-point circuit ■ POINT2MULTIPOINT = Configures for a point-to-multipoint circuit <p>Default value: AUTO</p>
default_caller_id_channel_0 or default_caller_id_channel_1	<p>Specifies a string of up to 15 characters that provides the caller ID to use when placing outbound calls on channel 0 (or 1). If the user application provides a caller ID when placing a call, the system ignores this field.</p> <p>Unit: character string</p> <p>Range: 1 - 15 (_ECC_MAX_ANI_LENGTH)</p> <p>Default value: Blank</p>
did_offset	<p>Specifies a value that defines the number of digits to remove from the beginning of the string of DID digits received from the network. Valid values are:</p> <ul style="list-style-type: none"> ■ 0 = Does not remove any DID digits ■ 1 - 63 = Specifies the number of digits to remove <p>Range: 0 through 63</p> <p>Default value: 0</p>
did_timeout	<p>Specifies a value that defines the maximum timeout allowed before processing the call after assuming receipt of the last DID digit. Valid values are:</p> <ul style="list-style-type: none"> ■ 0 = Indicates no waiting time ■ 1 - 20 = Specifies the number of seconds to allow after receiving the last DID digit before processing the call <p>Unit: second</p> <p>Range: 0 through 20</p> <p>Default value: 10 (used when the API does not find another value for this parameter)</p>
disable_conn_ack	<p>Specifies a Boolean value that determines whether the system sends a connection acknowledgment after receiving a connect message from the network. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = The system sends a connection acknowledgment message after receiving a connect message from the network. ■ TRUE = The system does not send a connection acknowledgment message after receiving a connect message from the network. <p>Default value: FALSE</p>
emulation	<p>Defines whether to configure the trunk for Central Office (CO) or Customer Premise Equipment (CPE) protocol emulation. For testing purposes only. Valid values include:</p> <ul style="list-style-type: none"> ■ CO = Emulates the CO protocol ■ CPE = Emulates the CPE protocol

Configuration Parameters for BRI Ports	
	Default value: CPE
max_did_digits	<p>Specifies a value that defines the maximum number of DID digits to expect before accepting an incoming call. Valid values are:</p> <ul style="list-style-type: none"> ■ 0 = Disables waiting for DID digits ■ 1 - 63 = Specifies the number of digits to expect before accepting an incoming call <p>Range: 0 through 63</p> <p>Default value: 0</p>
msn_x	<p>Specifies a value that allows the application to supply one of a series of multiple subscriber numbers (MSN) to acknowledge. The parameter allows you to specify up to 10 different MSN numbers as: msn_x = XXXX where x indicates the series value from 0 through 9 and</p> <p>XXXX supplies the multiple subscriber telephone number to associate with the x value.</p> <p>When you set one or more of the ten numbers and the port operates in point-to-multipoint mode, the port only acknowledges incoming calls to a called party that matches one of the numbered values. If you do not specify a value for this parameter, the port answers all calls presented to it. If you define less than 10 numbers, use the lower numbers first (for example: msn_0, msn_1, msn_2, and so on). Valid values are:</p> <p>Range: 1 through 15 character string (_ECC_MAX_ANI_LENGTH) to specify the associated called party number. Specifies the called party number assigned to the msn_x series number where x is a value from 0 through 9. Use the lower numbers first for the msn_x series.</p> <p>Default value: Blank</p>
numbering_plan	<p>Specifies a value that identifies the type of numbering plan used for outbound calls (called party number). Valid values are:</p> <ul style="list-style-type: none"> ■ ISDN = Indicates that the port uses an ISDN numbering plan ■ PRIVATE = Indicates that the port uses a private numbering plan ■ TELEPHONY = Indicates that the port uses a telephony numbering plan ■ UNKNOWN = Indicates that the port uses an unknown numbering plan <p>Default value: UNKNOWN</p>
numbering_type	<p>Specifies a value that identifies the type of telephone number used for outbound calls (called party number). Valid values are:</p> <ul style="list-style-type: none"> ■ ABBREVIATED = Indicates that the port uses an abbreviated numbering type ■ INTERNATIONAL = Indicates that the port uses an international numbering type ■ NATIONAL = Indicates that the port uses a national numbering type ■ SUBSCRIBER = Indicates that the port uses a subscriber numbering type ■ UNKNOWN = Indicates that the port uses an unknown numbering type <p>Default value: UNKNOWN</p>

Configuration Parameters for BRI Ports	
preferred	<p>Specifies a Boolean value that causes outbound calls to set a use preference for the B channel when the port uses a point-to-multipoint circuit.</p> <p>Set this parameter only if the port uses a point-to-multipoint circuit. If other devices share the BRI line with the Brooktrout hardware, you must set this parameter to TRUE to make the B channel setting preferred on outbound calls. If you set the parameter to FALSE, making the B channel setting exclusive for an outbound call, the port's point-to-multipoint circuit cannot operate. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = Sets the B channel to exclusive on outbound calls ■ TRUE = Sets the B channel to preferred on outbound calls <p>Default value: TRUE</p>
presentation	<p>Specifies a value that indicates the type of presentation of the calling party number the port uses when placing an outbound call. Valid values are:</p> <ul style="list-style-type: none"> ■ ALLOWED = Indicates that the port allows presentation of the calling party number to the called party. ■ NUM_NOT_AVAIL = Indicates that the port does not have a calling party number specified to present to the called party. ■ RESTRICTED = Indicates that the port restricts presentation of the calling party number to specific called party numbers. <p>Note: You should set the parameter to NUM_NOT_AVAIL when connected to a public network.</p> <p>Default value: ALLOWED</p>
redirect_as_calling_party	<p>Specifies a Boolean value that selects an option to use the redirect number as the calling party number reported to the application. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = Causes the system to use the original calling party number as the number reported to the application. ■ TRUE = Causes the system to use the redirect number as the calling party number reported to the application. Selecting this option removes any association between the original calling party number and the call. <p>Default value: FALSE</p>
reject_incomplete_did	<p>Specifies the action to take when the number of DID digits received from the incoming call is less than the number of digits specified for the max_did_digits field. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = Sends an alerting or proceeding message to the network and reports the call to the application even if the number of received DID digits is less than the max_did_digits value. The system takes this action when the number of digits collected remains incomplete after the did_timeout period or when it receives a sending complete informational element (IE). ■ TRUE = Sends the network a reject message that causes the network to drop the call. The application does not receive any notification of the call. <p>Default value: FALSE</p>
screening	<p>Specifies a value that indicates whether the port provides and validates the calling party number passed to the called party. Valid values are:</p> <ul style="list-style-type: none"> ■ NETWORK_PROVIDED Indicates that the network validates the calling party

Configuration Parameters for BRI Ports	
	<p>number.</p> <ul style="list-style-type: none"> ■ USER_NOT_SCREENED Indicates that the port provides the calling party number without validating it. ■ USER_VERIFICATION_FAILED Indicates that the port failed to validate the calling party number. ■ USER_VERIFICATION_PASSED Indicates that the port provided the calling party number and passed a successfully validated number to the called party. <p>Note: Set the parameter to USER_NOT_SCREENED when connected to a public network.</p> <p>Default value: USER_NOT_SCREENED</p>
send_dialcomplete	<p>Specifies a Boolean value that determines whether the system sends a dial complete informational element (IE) on outbound calls. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = Indicates that the port does not send a dial complete IE message on outbound calls. ■ TRUE = Requests the system to send a dial complete IE message on outbound calls. <p>Default value: TRUE</p>
spid	<p>Specifies a value that indicates a number assigned as a service profile identifier (SPID). The USA sometimes uses this identifier but European nations do not. Leave the field blank unless the service requires an identifier. Valid values are:</p> <p>Unit: character</p> <p>Range: 1 - 15 (_ECC_MAX_ANI_LENGTH)</p> <p>Default value: Blank</p>
transfer_variant	<p>Specifies the transfer method that the network (refer to the vendor specifications for your switch) runs for call transfers, or disables call transfer. Valid values are:</p> <ul style="list-style-type: none"> ■ NONE = Disables call transfer ■ ETSI_EXP_LINK = Specifies an ETSI transfer with explicit linkage ■ ETSI_IMP_LINK = Specifies an ETSI transfer with implicit linkage <p>If the API cannot perform implicit linkage because there are more than two calls on the D-channel, the API performs explicit linkage.</p> <ul style="list-style-type: none"> ■ NTT = Specifies a JATE active redirecting transfer ■ NTT_MP = Specifies a JATE active redirecting transfer for a point to multipoint configuration <p>Default value: ETSI_IMP_LINK</p>
wait_for_conn_ack	<p>Specifies a Boolean value that determines whether the system waits for the network to acknowledge a connect request before notifying the application that a call has been answered. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = Specifies that the system does not wait for the network to acknowledge a connect request before advancing an incoming call to the connected state. ■ TRUE = Requests the system to wait for the network to acknowledge a

Configuration Parameters for BRI Ports	
	<p>connect request before advancing an incoming call to the connected state.</p> <p>Default value: FALSE</p>

Configuration Parameters for E1 ISDN Ports	
call_type	<p>Specifies the call type to use when making the outbound call. Use one of the following values for this field:</p> <ul style="list-style-type: none"> ■ AUTO = Makes a call using the modem type and then automatically retries the call using the voice type if the other end cannot accept modem calls. ■ MODEM = Makes a modem (3.1 kHz audio) call. This setting provides higher quality audio for the call. ■ SPEECH = Makes a voice call. <p>Default value: AUTO</p>
crc	<p>Specifies a Boolean value that indicates whether the port has cyclical redundancy checking (CRC) enabled. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = Indicates that the port has disabled CRC ■ TRUE = Indicates that the port has CRC enabled <p>Default value: TRUE</p>
default_caller_id	<p>Specifies a string of up to 15 characters that provides the caller ID to use when placing outbound calls. If the user application provides a caller ID when placing a call, the system ignores this field.</p> <p>Unit: character string</p> <p>Range: 1 - 15 (_ECC_MAX_ANI_LENGTH)</p> <p>Default value: Blank</p>
did_offset	<p>Specifies a value that defines the number of digits to remove from the beginning of the string of DID digits received from the network. Valid values are:</p> <ul style="list-style-type: none"> ■ 0 = Does not remove any DID digits ■ 1 - 63 = Specifies the number of digits to remove <p>Range: 0 through 63</p> <p>Default value: 0</p>
did_timeout	<p>Specifies a value that defines the maximum timeout allowed before processing the call after assuming receipt of the last DID digit. Valid values are:</p> <ul style="list-style-type: none"> ■ 0 = Indicates no waiting time ■ 1 - 20 = Specifies the number of seconds to allow after receiving the last DID digit before processing the call <p>Unit: second</p>

Configuration Parameters for E1 ISDN Ports	
	<p>Range: 0 through 20</p> <p>Default value: 10 (used when the API does not find another value for this parameter)</p>
disable_conn_ack	<p>Specifies a Boolean value that determines whether the system sends a connection acknowledgment after receiving a connect message from the network. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = The system sends a connection acknowledgment message after receiving a connect message from the network. ■ TRUE = The system does not send a connection acknowledgment message after receiving a connect message from the network. <p>Default value: FALSE</p>
emulation	<p>Defines whether to configure the trunk for Central Office (CO) or Customer Premise Equipment (CPE) protocol emulation. For testing purposes only. Valid values include:</p> <ul style="list-style-type: none"> ■ CO = Emulates the CO protocol ■ CPE = Emulates the CPE protocol <p>Default value: CPE</p>
line_coding	<p>Specifies a value defining the type of line encoding to use for the port. Valid values are:</p> <ul style="list-style-type: none"> ■ AMI = Selects Alternate Mark Inversion ■ HDB3 = Selects High Density Bipolar Order 3 <p>Default value: HDB3</p>
line_impedance	<p>Specifies a value that defines the line impedance the port uses. Valid values are:</p> <ul style="list-style-type: none"> ■ 75 = Specifies that the port uses an impedance value of 75 ohms ■ 120 = Specifies that the port uses an impedance value of 120 ohms <p>Default value: 120</p>
max_did_digits	<p>Specifies a value that defines the maximum number of DID digits to expect before accepting an incoming call. Valid values are:</p> <ul style="list-style-type: none"> ■ 0 = Disables waiting for DID digits ■ 1 - 63 = Specifies the number of digits to expect before accepting an incoming call <p>Range: 0 through 63</p> <p>Default value: 0</p>
numbering_plan	<p>Specifies a value that identifies the type of numbering plan used for outbound calls (called party number). Valid values are:</p> <ul style="list-style-type: none"> ■ ISDN Indicates that the port uses an ISDN numbering plan. ■ PRIVATE Indicates that the port uses a private numbering plan. ■ TELEPHONY Indicates that the port uses a telephony numbering plan. ■ UNKNOWN Indicates that the port uses an unknown numbering plan. <p>Default value: UNKNOWN</p>

Configuration Parameters for E1 ISDN Ports	
numbering_type	<p>Specifies a value that identifies the type of telephone number used for outbound calls (called party number). Valid values are:</p> <ul style="list-style-type: none"> ■ ABBREVIATED Indicates that the port uses an abbreviated numbering type. ■ INTERNATIONAL Indicates that the port uses an international numbering type. ■ NATIONAL Indicates that the port uses a national numbering type. ■ SUBSCRIBER Indicates that the port uses a subscriber numbering type. ■ UNKNOWN Indicates that the port uses an unknown numbering type. <p>Default value: UNKNOWN</p>
presentation	<p>Specifies a value that indicates the type of presentation of the calling party number the port uses when placing an outbound call. Valid values are:</p> <ul style="list-style-type: none"> ■ ALLOWED Indicates that the port allows presentation of the calling party number to the called party. ■ NUM_NOT_AVAIL Indicates that the port does not have a calling party number specified to present to the called party. ■ RESTRICTED Indicates that the port restricts presentation of the calling party number to specific called party numbers. <p>Note: You should set the parameter to NUM_NOT_AVAIL when connected to a public network.</p> <p>Default value: ALLOWED</p>
protocol	<p>Specifies the type of protocol variant to use for the port. Valid values are:</p> <ul style="list-style-type: none"> ■ euro NET-5 standard for PRI connections throughout Europe (also referred to as Euro-ISDN). Choosing this variant changes the layer 2 protocol timers to their appropriate NET-5 defaults. ■ 1TR6 1TR6 standard for PRI connections in Germany. ■ Vn3 VN3 standard for France. ■ 9931 General ITU-T Q.931 conformance. ■ Jate INS-1500 for Japan. <p>Default value: euro</p>
reject_incomplete_did	<p>Specifies the action to take when the number of DID digits received from the incoming call is less than the number of digits specified for the max_did_digits field. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = Sends an alerting or proceeding message to the network and reports the call to the application even if the number of received DID digits is less than the max_did_digits value. The system takes this action when the number of digits collected remains incomplete after the did_timeout period or when it receives a sending complete informational element (IE). ■ TRUE = Sends the network a reject message that causes the network to drop the call. The application does not receive any notification of the call. <p>Default value: FALSE</p>
sabme	<p>Specifies a Boolean value that indicates whether the port sends layer 2 Set</p>

Configuration Parameters for E1 ISDN Ports	
	<p>Asynchronous Balanced Mode Extended (SABME) messages. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = Indicates that the port does not send SABME messages ■ TRUE = Indicates that the port does send layer 2 SABME messages <p>Default value: TRUE</p>
screening	<p>Specifies a value that indicates whether the port provides and validates the calling party number passed to the called party. Valid values are:</p> <ul style="list-style-type: none"> ■ NETWORK_PROVIDED Indicates that the network validates the calling party number. ■ NONE Indicates that the port does not provide a calling party number to the called party. ■ USER_NOT_SCREENED Indicates that the port provides the calling party number without validating it. ■ USER_VERIFICATION_FAILED Indicates that the port failed to validate the calling party number. ■ USER_VERIFICATION_PASSED Indicates that the port provides the calling party number and passes a successfully validated number to the called party. <p>Note: You should set the parameter to USER_NOT_SCREENED when connected to a public network.</p> <p>Default value: USER_NOT_SCREENED</p>
send_dialcomplete	<p>Specifies a Boolean value that determines whether the system sends a dial complete informational element (IE) on outbound calls. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = Indicates that the port does not send a dial complete IE message on outbound calls. ■ TRUE = Requests the system to send a dial complete IE message on outbound calls. <p>Default value: TRUE</p>
switch_type	<p>Specifies a value indicating the type of switch used for the board connection. Valid values are:</p> <ul style="list-style-type: none"> ■ ATT_4ESS AT&T #4 ESS ■ ATT_5ESS AT&T #5 ESS ■ NTI_DMS100 Nortel DMS-100 ■ NTI_DMS250 Nortel DMS-250 ■ MD110_T1 Selects Ericsson MD-110 switch for North America ■ MD110_E1 Selects Ericsson MD-110 switch (International) ■ SIEMENS Siemens ■ NTT Japan ■ UNKNOWN Selects a switch type that complies with the ITU-T standards <p>Default value: UNKNOWN (ITU-T compliant)</p>

Configuration Parameters for E1 ISDN Ports	
transfer_variant	<p>Specifies the transfer method that the network (refer to the vendor specifications for your switch) runs for call transfers or disables call transfer. Valid values are:</p> <ul style="list-style-type: none"> ■ NONE = Disables call transfer ■ ETSI_EXP_LINK = Specifies an ETSI transfer with explicit linkage ■ NTT = Specifies a JATE active redirecting transfer <p>Default value: ETSI_EXP_LINK</p>
wait_for_conn_ack	<p>Specifies a Boolean value that determines whether the system waits for the network to acknowledge a connect request before notifying the application that a call has been answered. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = Specifies that the system does not wait for the network to acknowledge a connect request before advancing an incoming call to the connected state. ■ TRUE = Requests the system to wait for the network to acknowledge a connect request before advancing an incoming call to the connected state. <p>Default value: FALSE</p>

Configuration Parameters for E1 R2 CAS Ports	
crc	<p>Specifies a Boolean value that indicates whether the port has cyclical redundancy checking (CRC) enabled.</p> <ul style="list-style-type: none"> ■ DISABLED= Indicates that the port has disabled CRC ■ ENABLED = Indicates that the port has CRC enabled <p>Default value: ENABLED</p>
default_caller_id	<p>Specifies a string of up to 15 characters that provides the caller ID to use when placing outbound calls. If the user application provides a caller ID when placing a call, the system ignores this field.</p> <p>Unit: character string</p> <p>Range: 1 - 15 (_ECC_MAX_ANI_LENGTH)</p> <p>Default value: Blank</p>
line_coding	<p>Specifies a value defining the type of line encoding to use for the port. Valid values are:</p> <ul style="list-style-type: none"> ■ AMI = Selects Alternate Mark Inversion (AMI) ■ HDB3 = Selects High Density Bipolar Order 3 (HDB3) <p>Default value: HDB3</p>
line_impedance	<p>Specifies a value that defines the line impedance the port uses. Valid values are:</p> <p>75 = Specifies that the port uses an impedance value of 75 ohms</p> <p>120 = Specifies that the port uses an impedance value of 120 ohms</p>

Configuration Parameters for E1 R2 CAS Ports	
	Default value: 120
max_did_digits	<p>Specifies a value that defines the maximum number of DID digits to wait for before accepting an incoming call. Valid values are:</p> <ul style="list-style-type: none"> ■ 0 = Disables waiting for DID digits ■ 1 - 63 = Specifies the number of digits to expect before accepting an incoming call <p>Range: 0 through 63 Default value: 0</p>
protocol_file	<p>Specifies the full path and name of the file containing the configuration for the R2 variant of a channel associated signaling (CAS) protocol. This parameter dictates which R2 CAS protocol runs on the port. Valid values are:</p> <ul style="list-style-type: none"> ■ itu_argentina.r2=Selects the protocol file for Argentina ■ itu_brazil.r2 = Selects the protocol file for Brazil ■ itu_china.r2 = Selects the protocol file for China ■ itu_egypt.r2 = Selects the protocol file for Egypt ■ itu_korea.r2 = Selects the protocol file for Korea ■ itu_mexico.r2 = Selects the protocol file for Mexico <p>Unit: character string Range: 1 - 256 (_MAX_PATH) Default value: None</p>

Configuration Parameters for T1 ISDN Ports	
call_type	<p>Specifies the call type to use when making the outbound call. Use one of the following values for this field:</p> <ul style="list-style-type: none"> ■ AUTO = Makes a call using the modem type and then automatically retries the call using the voice type if the other end cannot accept modem calls. ■ MODEM = Makes a modem (3.1 kHz audio) call. This setting provides higher quality audio for the call. ■ SPEECH = Makes a voice call. <p>Default value: AUTO</p>
default_caller_id	<p>Specifies a string of up to 15 characters that provides the caller ID to use when placing outbound calls. If the user application provides a caller ID when placing a call, the system ignores this field.</p> <p>Unit: character string Range: 1 - 15 (_ECC_MAX_ANI_LENGTH) Default value: Blank</p>

Configuration Parameters for T1 ISDN Ports	
did_offset	<p>Specifies a value that defines the number of digits to remove from the beginning of the string of DID digits received from the network. Valid values are:</p> <ul style="list-style-type: none"> ■ 0 = Does not remove any DID digits ■ 1 - 63 = Specifies the number of digits to remove <p>Range: 0 through 63</p> <p>Default value: 0</p>
did_timeout	<p>Specifies a value that defines the maximum timeout allowed before processing the call after assuming receipt of the last DID digit. Valid values are:</p> <ul style="list-style-type: none"> ■ 0 = Indicates no waiting time ■ 1 - 20 = Specifies the number of seconds to allow after receiving the last DID digit before processing the call <p>Unit: second</p> <p>Range: 0 through 20</p> <p>Default value: 10 (used when the API does not find another value for this parameter)</p>
disable_conn_ack	<p>Specifies a Boolean value that determines whether the system sends a connection acknowledgment after receiving a connect message from the network. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = The system sends a connection acknowledgment message after receiving a connect message from the network. ■ TRUE = The system does not send a connection acknowledgment message after receiving a connect message from the network. <p>Default value: FALSE</p>
emulation	<p>Defines whether to configure the trunk for Central Office (CO) or Customer Premise Equipment (CPE) protocol emulation. For testing purposes only. Valid values include:</p> <ul style="list-style-type: none"> ■ CO = Emulates the CO protocol ■ CPE = Emulates the CPE protocol <p>Default value: CPE</p>
line_build_out	<p>Specifies one of the following values that defines the length of the telephony cable connection between the board and the T1 service:</p> <ul style="list-style-type: none"> ■ 0_133 = Specifies a length of 0 to 133 feet ■ 133_266 = Specifies a length of 133 to 266 feet ■ 266_399 = Specifies a length of 266 to 399 feet ■ 399_533 = Specifies a length of 399 to 533 feet ■ 533_655 = Specifies a length of 533 to 655 feet ■ 7_5_DB = Specifies a length of negative 7.5 dB ■ 15_DB = Specifies a length of negative 15.0 dB ■ 22_5_DB = Specifies a length of negative 22.5 dB <p>Default value: 0_133</p>

Configuration Parameters for T1 ISDN Ports	
line_coding	<p>Specifies a value defining the type of line encoding to use for the port. Valid values are:</p> <ul style="list-style-type: none"> ■ B8ZS = Selects Bipolar 8-Zero Suppression ■ JBZS = Selects Jammed Bit Zero Suppression ■ ZBTSI = Selects Zero Byte Time Slot Interchange ■ AMI = Selects Alternate Mark Inversion <p>Default value: B8ZS</p>
max_did_digits	<p>Specifies a value that defines the maximum number of DID digits to expect before accepting an incoming call. Valid values are:</p> <ul style="list-style-type: none"> ■ 0 = Disables waiting for DID digits ■ 1 - 63 = Specifies the number of digits to expect before accepting an incoming call <p>Range: 0 through 63</p> <p>Default value: 0</p>
NSF	<p>Specifies a value indicating that the user's call setup message, if defined, includes a network specific facility (NSF) message. Set the value in this parameter to one of the following to indicate the type of service used to send the NSF message in the outbound call setup:</p> <ul style="list-style-type: none"> ■ 0 = Indicates that the call setup does not include an NSF message. ■ 1 = Indicates use of an AT&T software-defined network or a Northern Telecom private network. ■ 2 = Indicates use of the AT&T Megacom 800 service. ■ 3 = Indicates use of the AT&T Megacom or Northern Telecom OutWATS service. ■ 4 = Indicates use of the Northern Telecom foreign exchange service. ■ 5 = Indicates use of the Northern Telecom tie trunk service. ■ 6 = Indicates use of the AT&T Accunet service. ■ 8 = Indicates use of the AT&T international 800 service. ■ 16 = Indicates use of the Northern Telecom TRO call service. <p>Default value: 0</p>
numbering_plan	<p>Specifies a value that identifies the type of numbering plan used for outbound calls (called party number). Valid values are:</p> <ul style="list-style-type: none"> ■ ISDN Indicates that the port uses an ISDN numbering plan. ■ PRIVATE Indicates that the port uses a private numbering plan. ■ TELEPHONY Indicates that the port uses a telephony numbering plan. ■ UNKNOWN Indicates that the port uses an unknown numbering plan. <p>Default value: PRIVATE</p>
numbering_type	<p>Specifies a value that identifies the type of telephone number used for outbound calls</p>

Configuration Parameters for T1 ISDN Ports	
	<p>(called party number). Valid values are:</p> <ul style="list-style-type: none"> ■ ABBREVIATED Indicates that the port uses an abbreviated numbering type. ■ INTERNATIONAL Indicates that the port uses an international numbering type. ■ NATIONAL Indicates that the port uses a national numbering type. ■ SUBSCRIBER Indicates that the port uses a subscriber numbering type. ■ UNKNOWN Indicates that the port uses an unknown numbering type. <p>Default value: UNKNOWN</p>
presentation	<p>Specifies a value that indicates the type of presentation of the calling party number the port uses when placing an outbound call. Valid values are:</p> <ul style="list-style-type: none"> ■ ALLOWED Indicates that the port allows presentation of the calling party number to the called party. ■ NUM_NOT_AVAIL Indicates that the port does not have a calling party number specified to present to the called party. ■ RESTRICTED Indicates that the port restricts presentation of the calling party number to specific called party numbers. <p>Note: You should set the parameter to NUM_NOT_AVAIL when connected to a public network.</p> <p>Default value: ALLOWED</p>
protocol	<p>Specifies the type of protocol variant to use for the port. Valid values are:</p> <ul style="list-style-type: none"> ■ ATT AT&T as defined in AT&T PUB 41449 ■ ISDN1 Bellcore National ISDN-1 Standard ■ ISDN2 Bellcore National ISDN-2 Standard ■ Jate Jate (Japan) INS-1500 ■ Nortel Nortel as defined in NIS A211-1 ■ CTR4 NET-5 standard for PRI connections throughout Europe (also referred to as Euro-ISDN). Choosing this variant changes the Layer 2 protocol timers to their appropriate NET-5 defaults. ■ CCITT General ITU-T Q.931 conformance <p>Default value: ATT</p>
reject_incomplete_did	<p>Specifies the action to take when the number of DID digits received from the incoming call is less than the number of digits specified for the max_did_digits field. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = Sends an alerting or proceeding message to the network and reports the call to the application even if the number of received DID digits is less than the max_did_digits value. The system takes this action when the number of digits collected remains incomplete after the did_timeout period or when it receives a sending complete informational element (IE). ■ TRUE = Sends the network a reject message that causes the network to drop the call. The application does not receive any notification of the call. <p>Default value: FALSE</p>
sabme	<p>Specifies a Boolean value that indicates whether the port sends layer 2 Set</p>

Configuration Parameters for T1 ISDN Ports	
	<p>Asynchronous Balanced Mode Extended (SABME) messages. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = Indicates that the port does not send SABME messages ■ TRUE = Indicates that the port does send layer 2 SABME messages <p>Default value: TRUE</p>
screening	<p>Specifies a value that indicates whether the port provides and validates the calling party number passed to the called party. Valid values are:</p> <ul style="list-style-type: none"> ■ NETWORK_PROVIDED Indicates that the network validates the calling party number. ■ USER_NOT_SCREENED Indicates that the port provides the calling party number without validating it. ■ USER_VERIFICATION_FAILED Indicates that the port failed to validate the calling party number. ■ USER_VERIFICATION_PASSED Indicates that the port provides the calling party number and passes a successfully validated number to the called party. <p>Note: You should set the parameter to USER_NOT_SCREENED when connected to a public network.</p> <p>Default value: USER_NOT_SCREENED</p>
switch_type	<p>Specifies a value indicating the type of switch used for the board connection. Valid values are:</p> <ul style="list-style-type: none"> ■ ATT_4ESS AT&T #4 ESS ■ ATT_5ESS AT&T #5 ESS ■ NTI_DMS100 Nortel DMS-100 ■ NTI_DMS250 Nortel DMS-250 ■ MD110_T1 Selects Ericsson MD-110 switch for North America ■ MD110_E1 Selects Ericsson MD-110 switch (International) ■ SIEMENS Siemens ■ NTT Japan ■ UNKNOWN Selects a switch type that complies with the ITU-T standards <p>Default value: UNKNOWN (ITU-T compliant)</p>
transfer_variant	<p>Specifies the transfer method that the network (refer to the vendor specifications for your switch) runs for call transfers or disables call transfer. Valid values are:</p> <ul style="list-style-type: none"> ■ NONE = Disables call transfer ■ TBCT = Specifies an ETSI transfer with explicit linkage ■ RLT = Specifies a Release Link Trunk transfer ■ NTT = Specifies a JATE active redirecting transfer <p>Default value: TBCT</p>
wait_for_bchannel_status	<p>Specifies a Boolean value that determines when the system puts the B-channels in service. Set the parameter as follows:</p>

Configuration Parameters for T1 ISDN Ports	
	<ul style="list-style-type: none"> ■ FALSE = Requests that the system puts all the B-channels in service as soon as the D-channel is in service. ■ TRUE = Requests that the system waits for the network to specifically enable each B-channel on the trunk before allowing the application to use a B-channel. <p>Default value: Depends on the value set in the switch_type parameter.</p>
wait_for_conn_ack	<p>Specifies a Boolean value that determines whether the system waits for the network to acknowledge a connect request before notifying the application that a call has been answered. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = Specifies that the system does not wait for the network to acknowledge a connect request before advancing an incoming call to the connected state. ■ TRUE = Requests the system to wait for the network to acknowledge a connect request before advancing an incoming call to the connected state. <p>Default value: FALSE</p>

Configuration Parameters for T1 RBS Ports	
did_offset	<p>Specifies a value that defines the number of digits to remove from the beginning of the string of DID digits received from the network. Valid values are:</p> <ul style="list-style-type: none"> ■ 0 = Does not remove any DID digits ■ 1 - 63 = Specifies the number of digits to remove <p>Range: 0 through 63</p> <p>Default value: 0</p>
did_timeout	<p>Specifies a value that defines the maximum timeout allowed before processing the call after assuming receipt of the last DID digit. Valid values are:</p> <ul style="list-style-type: none"> ■ 0 = Indicates no waiting time ■ 1 - 20 = Specifies the number of seconds to allow after receiving the last DID digit before processing the call <p>Unit: second</p> <p>Range: 0 through 20</p> <p>Default value: 10 (used when the API does not find another value for this parameter)</p>
flash_hook_duration	<p>Specifies a value for the duration of a flash hook signal. This parameter defines the amount of time to place the line on hook (loop current dropped) during a flash hook. Set the value in units of 10 ms.</p> <p>Unit: 10 ms</p> <p>Range: 1 - 500</p> <p>Default value: 50</p>
line_build_out	<p>Specifies one of the following values that defines the length of the telephony cable</p>

Configuration Parameters for T1 RBS Ports	
	<p>connection between the board and the T1 service:</p> <ul style="list-style-type: none"> ■ 0_133 = Specifies a length of 0 to 133 feet ■ 133_266 = Specifies a length of 133 to 266 feet ■ 266_399 = Specifies a length of 266 to 399 feet ■ 399_533 = Specifies a length of 399 to 533 feet ■ 533_655 = Specifies a length of 533 to 655 feet ■ 7_5_DB = Specifies a length of negative 7.5 dB ■ 15_DB = Specifies a length of negative 15.0 dB ■ 22_5_DB = Specifies a length of negative 22.5 dB <p>Default value: 0_133</p>
line_coding	<p>Specifies a value defining the type of line encoding to use for the port.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> ■ B8ZS = Selects Bipolar 8-Zero Suppression (B8ZS) ■ JBZS = Selects Jammed Bit Zero Suppression (JBZS) ■ ZBTSl = Selects Zero Byte Time Slot Interchange (ZBTSl) ■ AMI = Selects Alternate Mark Inversion (AMI) <p>Default value: B8ZS</p>
line_type	<p>Specifies a value defining the type of framing to use for the port. Valid values are:</p> <ul style="list-style-type: none"> ■ D4 = Selects AT&T D4 framing format ■ ESF = Selects Extended Super Frame (ESF) <p>Default value: ESF</p>
max_did_digits	<p>Specifies a value that defines the maximum number of DID digits to expect before accepting an incoming call. Valid values are:</p> <ul style="list-style-type: none"> ■ 0 = Disables waiting for DID digits ■ 1 - 63 = Specifies the number of digits - use a number in this range for all countries except Japan. ■ 1 - 4 = Specifies the number of digits for Japan only <p>Range: 0 through 63 for all except Japan; 0 through 4 for Japan</p> <p>Default value: 0</p> <p>Note: The system only reports the expected number of DID digits (the value specified for max_did_digits) to the application even if the number of DID digits it received from the network exceeds the number specified for max_did_digits.</p>
protocol_file	<p>Specifies the name of the T1 robbed-bit signaling (RBS) protocol file to load for the port. This parameter dictates the protocol that runs on the port. Valid values are:</p> <ul style="list-style-type: none"> ■ immediatedial.lec ■ winkstart.lec <p>Default value: None</p>

Configuration Parameters for T1 RBS Ports	
reject_incomplete_did	<p>Specifies the action to take when the number of DID digits received from the incoming call is less than the number of digits specified for the max_did_digits field. Set the parameter as follows:</p> <ul style="list-style-type: none"> ■ FALSE = Reports the call to the application even if the number of received DID digits is less than the max_did_digits value. The system takes this action when the number of digits collected remains incomplete after the did_timeout period. ■ TRUE = Sends the network a reject message that causes the network to drop the call. The application does not receive any notification of the call. <p>Default value: FALSE</p>
require_answer_signal	<p>Specifies a Boolean value that selects whether line signaling must be used to detect call answer.</p> <ul style="list-style-type: none"> ■ FALSE = Specifies that either line signaling or call progress can detect call answer. ■ TRUE = Specifies that only line signaling can detect call answer (call progress only detects failed calls - for example, reorder busy). <p>Default value: FALSE</p>
transfer_variant	<p>Specifies the transfer method that the network (refer to the vendor specifications for your switch) runs for call transfers or disables call transfer. Valid values are:</p> <ul style="list-style-type: none"> ■ NONE = Disables call transfer ■ HOOKFLASH = Specifies a hook flash transfer <p>Default value: HOOKFLASH</p>

Internet Protocol (IP) Call Control Configuration Parameters

The following paragraphs describe the sections of the call control configuration file (callctrl.cfg) that configure your modules and the Bfv API to use a proprietary, third party internet protocol (IP) call control stack. See below, [IP Call Control Configuration File Examples](#) for example configuration files.



Note




Only the TR1034 and virtual modules support these configuration parameters.



These sections of the configuration file include:


host_module.#	<ul style="list-style-type: none"> ■ Provides parameters to define a particular third party IP call control stack for the Bfv API to use. This configuration section also allows you to configure: ■ T.38 fax transport parameters for a module. ■ Custom key-value pairs for the third party IP call control stack to read from the configuration file.
module.#/ethernet.#	Provides parameters to define an Ethernet interface.
module.#/host_cc.#	Provides parameters to define a particular third party IP call control stack for the module to use.

Configuring T.38 Fax Transport Parameters

Specify values for the following T38-specific parameters in the `host_module.#/t38parameters` section of the call control configuration file.

Parameter	Value
<code>media_renegotiate_delay_inbound</code>	<p>Specifies how long the system waits to renegotiate the media when the system uses media renegotiation on inbound calls. If the system initially negotiated the media for audio (as required for Cisco routers), this parameter controls who in the network has the responsibility for renegotiating the media to image on inbound calls.</p> <p> Note Dialogic recommends that you contact Technical Support before attempting to use the renegotiation parameters.</p> <p>Set this parameter to a negative value when a Cisco router has the responsibility for renegotiating the media.</p> <p>Set this parameter to 0 or a positive number when the user agent client (UAC) has responsibility for renegotiating the media to image. Numbers greater than 0 indicate the number of milliseconds for the system to wait before attempting media renegotiation.</p> <p>Set this parameter to:</p> <ul style="list-style-type: none"> ■ -1 Disables media renegotiation on inbound calls. Use this value for a Cisco router ■ 0 Does not delay before attempting to renegotiate the media. ■ >0 Waits this number of milliseconds before attempting to renegotiate the media. <p> Note Set at least 500 msec of time difference between inbound and outbound media renegotiate delay parameters.</p> <p>Unit: ms</p> <p>Range: -1 and 0 to 60000</p> <p>Value Type: decimal</p> <p>Default value: 1000 (1 second).</p>
<code>media_renegotiate_delay_outbound</code>	<p>Specifies how long the system waits to renegotiate the media when the system uses media renegotiation on outbound calls. If the system initially negotiated the media for audio (as required for Cisco routers), this parameter controls who in the network has the responsibility for renegotiating the media to image on outbound calls.</p> <p> Note Brooktrout recommends that you contact Technical Support before attempting to use the renegotiation parameters.</p> <p>Set this parameter to a negative value when a Cisco router has the responsibility for renegotiating the media.</p> <p>Set this parameter to 0 or a positive number when the user agent client</p>

Parameter	Value
	<p>(UAC) has responsibility for renegotiating the media to image. Numbers greater than 0 indicate the number of milliseconds for the system to wait before attempting media renegotiation.</p> <p>Set this parameter to:</p> <ul style="list-style-type: none"> ■ -1 Disables media renegotiation on outbound calls. Use this value for a Cisco router. ■ 0 Does not delay before attempting to renegotiate the media. ■ >0 Waits this number of milliseconds before attempting to renegotiate the media. <p> Note Set at least 500 ms of time difference between inbound and outbound media renegotiate delay parameters.</p> <p>Unit: ms</p> <p>Range: -1 and 0 to 60000</p> <p>Value Type: decimal</p> <p>Default value: 2000 (2 second).</p>
t38_fax_fill_bit_removal	<p>Specifies whether the API can remove or insert fill bits to reduce the bandwidth of the transport mechanism. Set this parameter to:</p> <ul style="list-style-type: none"> ■ FALSE Indicates that the API does not support the capability. ■ TRUE Indicates that the API can remove or insert fill bits. <p>Value type: Boolean</p> <p>Default value: FALSE</p> <p> Note This parameter does not affect the normal T.30-level capability to remove or insert fill bits.</p>
t38_fax_rate_management	<p>Specifies a value that identifies the data rate management method of the transport. Set this parameter to:</p> <ul style="list-style-type: none"> ■ localTCF Indicates that the transport uses the local training check frame (TCF) data rate management type (not supported). ■ transferredTCF Indicates that the transport uses the transferred training check frame (TCF) data rate management type. <p>Value type: character string</p> <p>Default value: transferredTCF</p>
t38_fax_transcoding_JBIG	<p>Specifies whether the API can convert to and from JBIG fax images to reduce the bandwidth of the transport mechanism when using a reliable transport (for example, TCP). Set this parameter to:</p> <ul style="list-style-type: none"> ■ FALSE Indicates that the API does not support the capability. ■ TRUE Indicates that the API can convert JBIG fax images. <p>Value type: Boolean</p> <p>Default value: FALSE</p>

Parameter	Value
t38_fax_transcoding_MMR	<p>Specifies whether the API can convert to and from MMR fax compression to reduce the bandwidth of the transport mechanism when using a reliable transport (for example, TCP). Set this parameter to:</p> <p>FALSE Indicates that the API does not support the capability.</p> <p>TRUE Indicates that the API can convert MMR compression.</p> <p>Value type: Boolean</p> <p>Default value: FALSE</p> <p> Note This parameter does not affect the normal T.30-level capability to use MMR if the two endpoints select MMR as a line compression format.</p>
t38_fax_udp_ec	<p>Specifies a value that identifies the error correction method of the T.38 fax transport. Set this parameter to:</p> <ul style="list-style-type: none"> ■ t38UDPFEC The transport uses the T.38 user datagram protocol (UDP) forward error correction (FEC) method (not supported). ■ t38UDPRedundancy The transport uses the T.38 UDP redundancy error correction method. <p>Value type: character string</p> <p>Default value: t38UDPRedundancy</p>
t38_max_bit_rate	<p>Specifies a value that defines the maximum bit rate for fax packetization onto the network. Set this parameter to:</p> <ul style="list-style-type: none"> ■ 2400 Represents the maximum bit rate that can be negotiated for fax packetization. ■ 4800 Represents the maximum bit rate that can be negotiated for fax packetization. ■ 7200 Represents the maximum bit rate that can be negotiated for fax packetization. ■ 9600 Represents the maximum bit rate that can be negotiated for fax packetization. ■ 12000 Represents the maximum bit rate that can be negotiated for fax packetization. ■ 14400 Represents the maximum bit rate that can be negotiated for fax packetization. <p>Unit: bits per second</p> <p>Range: 2400, 4800, 7200, 9600, 12000, 14400</p> <p>Value type: decimal</p> <p>Default value: 14400</p>
t38_t30_fastnotify	<p>Specifies whether the transport signals the beginning of T.30 by means of a zero-length data field or uses a T.30 indicator value. Set this parameter to:</p> <p>FALSE: Indicates that the T.38 fax transport uses a zero-length data field to signal the beginning of T.30.</p> <p>TRUE: Indicates that the transport uses a T30_INDICATORvalue to signal</p>

Parameter	Value
	<p>the beginning of T.30.</p> <p>Value Type: Boolean</p> <p>Default value: FALSE</p>
t38_t30_fastnotify	<p>Specifies whether the transport signals the beginning of T.30 by means of a zero-length data field or uses a T.30 indicator value. Set this to parameter to:</p> <p>FALSE: Indicates that the T.38 fax transport uses a zero-length data field to signal the beginning of T.30.</p> <p>TRUE: Indicates that the transport uses a T30_INDICATORvalue to signal the beginning of T.30.</p> <p>Value Type: Boolean</p> <p>Default value: FALSE</p>
t38_UDPTL_redundancy_depth_control	<p>Specifies a value that defines the number of prior messages to include as messages redundancy information in a transmitted UDPTL packet carrying signal (FSK signals). Set this parameter to:</p> <ul style="list-style-type: none"> 0- 5: Specifies a number value defining how many prior messages to include as redundancy messages in a packet carrying control data. <p>Unit: Number</p> <p>Range: 0 through 5</p> <p>Value Type: decimal</p> <p>Default value: 5</p>
t38_UDPTL_redundancy_depth_image	<p>Specifies a value that defines the number of prior messages to include as redundancy messages in a transmitted UDPTL packet carrying image data. Set this parameter to:</p> <ul style="list-style-type: none"> 0-2: Specifies a number value defining how many prior messages to include as redundancy messages in a packet carrying image data. <p>Unit: number</p> <p>Range: 0 through 2</p> <p>Value Type: decimal</p> <p>Default value: 2</p>

Brooktrout has predefined a set of common parameters for several IP protocols. See:

- [Table 1](#): Predefined H.323 IP Call Control Stack Parameters for H.323 parameters.
- [Table 2](#): Basic Predefined SIP IP Call Control Stack Parameters for Basic SIP parameters
- [Table 3](#): Advanced SIP IP Call Control Stack Parameters for Advanced SIP parameters

The maximum length of a key's name is defined as CIPI_MAX_KEY_NAME, and the maximum length of a character string value is defined as CIPI_MAX_KEY_VALUE. These lengths must allow for the NULL terminating character.

Table 1. Predefined H.323 IP Call Control Stack Parameters


Key Name	Description
h323_default_gateway	<p>Indicates the IP address of a default gateway to use for outbound calls. If a user only specifies a phone number when making an H.323 call and the application is not using an H.323 gatekeeper, the API forwards the call to the gateway specified with this parameter. The API forwards the specified phone number to the gateway for routing purposes. When set, this parameter must contain an IP address in the form: xxx.xxx.xxx.xxx:PortNumber(Port number is optional)</p> <p>Examples</p> <p>10.128.22.6:1720 (port number specified)</p> <p>10.128.22.6 (no port number specified)</p> <p>Note: For the H.323 protocol, the port defaults to 1720 if not specified.</p> <p>Range: 1-255 characters</p> <p>Value Type: character string (up to 256 characters)</p> <p>Default value: <blank>(empty string indicating no default gateway defined)</p> <p>Note: The API does not use this parameter if the configuration file specifies a value of 1 for the h323_register parameter (see below).</p>
h323_e164alias	<p>Specifies the E.164 alias of the H.323 terminal. The system uses this alias during gatekeeper registration and call establishment. The alias identifies the phone number of the H.323 terminal.</p> <p>Range: 1 - 128characters (inclusive)</p> <p>Value Type: character string restricted to numbers 0 through 9 and the star (*) and pound (#) symbols</p> <p>Default value: <blank></p>
h323_gatekeeper_id	<p>Specifies the ID of the H.323 gatekeeper that the H.323 terminal expects to find during the gatekeeper discovery routine. If you do not set this parameter, the H.323 terminal attempts to register with the first gatekeeper it finds.</p> <ul style="list-style-type: none"> ■ <blank> Uses the first gatekeeper the H.323 terminal locates. <p>Value Type: Unicode character string (up to 256 characters)</p> <p>Default value: <blank></p>
h323_gatekeeper_ip_address	<p>Specifies the IP address of the H.323 gatekeeper that receives the registration request from the H.323 terminal. If you leave this parameter blank, the H.323 terminal performs a multicast gatekeeper discovery routine to find the gatekeeper using port number 1719.</p> <ul style="list-style-type: none"> ■ xxx.xxx.xxx.xxx Configures the system to use the specified H.323 gatekeeper. Set the gatekeeper IP address in the form: xxx.xxx.xxx.xxx:PortNumber ■ <blank> Configures the system to use a multicast process to discover the H.323 gatekeeper. <p>Value Type: dotted decimal</p> <p>Default value: <blank> (uses multicast discovery process and port number 1719)</p>
h323_gatekeeper_ttl	<p>Specifies the number of seconds to allow between registration request messages sent from the H.323 terminal to the gatekeeper. After reaching this limit, the H.323 terminal generates another registration request to the gatekeeper because the system now considers the previous request invalid.</p>

Key Name	Description
	<p>Unit: second</p> <p>Range: 0 - 32,000,000 (0 means that gatekeeper registrations do not expire; 32,000,000 seconds equals one calendar year)</p> <p>Value Type: integer</p> <p>Default value: 0</p>
h323_h323IDalias	<p>Specifies the H.323 ID of the H.323 terminal. The system uses this alias during gatekeeper registration and call establishment. The alias identifies the name of the H.323 terminal.</p> <p>Range: Up to 256 characters</p> <p>Value Type: Unicode character string</p> <p>Default value: <blank></p>
h323_local_ip_address	<p>Specifies the transport address of the H.323 terminal. The transport address can be an IP address or a combination of the IP address and the port number that the H.323 call control stack uses. If you do not provide an address, the system uses the IP address of the first Ethernet module in the system and port number 1720.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> ■ xxx.xxx.xxx.xxx Configures the system to use the specified IP address for H.323 calls. Set the transport address in the form: xxx.xxx.xxx.xxx:PortNumber ■ <blank> Configures the system to use the address of the first Ethernet module and port number 1720. <p>Value Type: dotted decimal</p> <p>Default value: <blank>(uses first Ethernet module and port number 1720)</p>
h323_max_sessions	<p>Indicates the maximum number of concurrent H.323 calls that the host module can support at one time. Set this value to a number that at least doubles the number of channels in the system because the system can be tearing down a call while processing the next call.</p> <p>Range: 1through 65535 (inclusive)</p> <p>Value Type: decimal</p> <p>Default value: 256</p>
h323_register	<p>Specifies an integer value that determines whether to register with an H.323 gatekeeper.</p> <ul style="list-style-type: none"> ■ 0 Does not register with an H.323 gatekeeper. ■ 1 Registers with an H.323 gatekeeper. <p>Value type: integer</p> <p>Default value: 0</p>
h323_support_alterate_gk	<p>Specifies whether to support alternate gatekeepers. The gatekeeper receiving the registration request from the H.323 terminal must also support alternate gatekeepers.</p> <p>When the H.323 terminal sends a registration request to its primary gatekeeper, the primary gatekeeper sends the H.323 terminal a list of alternate gatekeepers that it knows about. If, for some reason, the H.323 terminal can no longer communicate with its primary gatekeeper, it goes through this list of alternate gatekeepers and attempts to register with one of them.</p> <p>When the system does not support alternate gatekeepers and the H.323 terminal can no longer communicate with its primary gatekeeper, the H.323 terminal goes through the</p>

Key Name	Description
	<p>multicast gatekeeper discovery routine to find an available gatekeeper.</p> <ul style="list-style-type: none"> ■ 0 Does not support alternate gatekeepers. ■ 1 Supports alternate gatekeepers when necessary. <p>Value type: integer</p> <p>Default value: 0</p>

Table 2. Basic Predefined SIP IP Call Control Stack Parameters

Key Name	Description
sip_Contact	<p>Indicates the value provided in the SIP header for the Contact parameter. The Contactparameter contains a SIP uniform resource identifier (URI) or SIPS (secure SIP) URI that defines the address of the sender.</p> <p>When this parameter is set to the default value (empty string), the SIP stack automatically attempts to find the IP address of the local host for its use by resolving the host name. You must make sure that the IP address of the local host is suitable for SIP use.</p> <p>Linux systems - If the SIP stack cannot resolve the name of the local host to a suitable IP address, the SIP stack does not function.</p> <p>Range: 1 - 255 characters</p> <p>Value Type: character string (up to 256 characters)</p> <p>Default value: <blank>(empty string indicating that the system uses the IP address of the local host)</p>
sip_default_gateway	<p>Indicates the IP address of a default gateway to use for outbound calls. If a user only specifies a phone number when making a SIP call and the application is not using a SIP proxy server, the API forwards the call to the gateway specified with this parameter. The API forwards the specified phone number to the gateway for routing purposes.</p> <p>When set, this parameter must contain an IP address in the form:</p> <ul style="list-style-type: none"> ■ xxx.xxx.xxx.xxx:PortNumber (port number is optional) <p>Examples:</p> <p>10.128.22.6:5060 (port number specified)</p> <p>10.128.22.6 (no port number specified)</p> <p>Note: For the SIP protocol, the port defaults to 5060 if not specified.</p> <p>Range: 1 - 255 characters</p> <p>Value Type: character string (up to 256 characters)</p> <p>Default value: <blank>(empty string indicating no default gateway defined)</p> <p>Note: The API does not use this parameter if the configuration file specifies a sip_registration_server or sip_proxy_server(see sip_proxy_server1 parameter below).</p>
sip_description_URL	<p>Indicates the value used for the u=line in the SIP SDP. The u=line identifies the SIP uniform resource identifier (URI) of the session description.</p> <p>Range: 1 - 255 characters</p>

Key Name	Description
	<p>Value Type: character string (up to 256 characters)</p> <p>Default value: <blank> (empty string)</p>
sip_email	<p>Indicates the value used for the e=line in the SIP SDP. The e=line identifies the email address of the person or entity responsible for the session.</p> <p>Range: 1 - 255 characters</p> <p>Value Type: character string (up to 256 characters)</p> <p>Default value: <blank>(empty string)</p>
sip_From	<p>Indicates the value provided in the SIP header for the From parameter. The Fromparameter contains a display name and a SIP uniform resource identifier (URI) or SIPS (secure SIP) URI that identifies the originator of the session request.</p> <p>Range: 1 - 255 characters</p> <p>Value Type: character string (up to 256 characters)</p> <p>Default value: "Anonymous <sip:no_from_info@ anonymous.invalid>"</p>
sip_max_sessions	<p>Indicates the maximum number of concurrent session initiation protocol (SIP) call control sessions. Set this value to a number that at least doubles the number of channels in the system because the system can be tearing down a call while processing the next call.</p> <p>Range: 1 through 1000</p> <p>Value Type: decimal</p> <p>Default value: 256</p>
sip_phone	<p>Indicates the value used for the p=line in the SIP SDP. The p= line identifies the phone number to associate with the session.</p> <p>Phone numbers use the conventional international format: the number preceded by a + (plus symbol), the country code and a space or hyphen character.</p> <p>Example: +1 408-370-0881</p> <p>Range: 1-255 characters</p> <p>Value Type: character string (up to 256 characters)</p> <p>Default value: <blank>(empty string)</p>
sip_proxy_server1 sip_proxy_server2 sip_proxy_server3 sip_proxy_server4	<p>Indicates the address of the specified SIP proxy server. The user can define a maximum of 4 proxy servers.</p> <p>DHCP Causes the system to use the SIP DNS server locator capability to discover the domain name of the SIP proxy server.</p> <p>Domain name Indicates the name or IP address of the proxy server.</p> <p>Range: 1 - 4 proxy servers specifying any valid domain name (for example, www.my_sip_server.comor 192.168.1.45)</p> <p>Value Type: character string (up to 256 characters)</p> <p>Default value: <blank> (empty string indicating no proxy server defined)</p> <p> Note</p>


Key Name	Description
	Do not use the DHCP value. It is reserved for future use.
sip_registration_server1 sip_registration_server2 sip_registration_server3 sip_registration_server4	<p>Indicates the address of the specified SIP registration server. The user can define a maximum of 4 registration servers.</p> <p>DHCP Causes the system to use the SIP DNS server locator capability to discover the domain name of the SIP registration server.</p> <p>Domain name Indicates the name or IP address of the registration server (up to 256 characters).</p> <p>Range: 1 - 4 registration servers specifying any valid domain name (for example, www.my_registration_server.com or 192.168.1.45)</p> <p>Value Type: character string (up to 256 characters)</p> <p>Default value: <blank>(empty string indicating no registration server defined)</p> <p> Note Do not use the DHCP value. It is reserved for future use.</p>
sip_session_description	<p>Indicates the value used for the i=line in the SIP SDP. The i=line provides a textual string that describes the session's purpose or provides information about the session.</p> <p>Range: 1-255 characters</p> <p>Value Type: character string (up to 256 characters)</p> <p>Default value: <blank>(empty string)</p>
sip_session_name	<p>Indicates the value used for the s=line in the SIP SDP. The s= line provides a textual string that gives a name to the session.</p> <p>Range: 1-255 characters</p> <p>Value Type: character string (up to 256 characters)</p> <p>Default value: no_session_name</p>
sip_username	<p>Indicates the name inserted into the o=line in the SIP session description protocol (SDP). The o=line defines the owner or creator of the session and the session identifier. This value must not contain spaces.</p> <p>- (dash) A dash or hyphen character indicates the absence of an owner name or session ID.</p> <p>Range: 1-255 characters</p> <p>Value Type: character string (up to 256 characters)</p> <p>Default value: -(dash or hyphen character)</p>

Table 3. Advanced SIP IP Call Control Stack Parameters



Key Name	Description
sip_Max-Forwards	<p>Indicates the value provided in the SIP header for the Max-Forwards parameter. The value in the Max-Forwardsparameter serves to prevent loops by limiting the number of hops a SIP request can make on the way to its destination. The value consists of an integer that the system decrements by one at each hop. When this value reaches 0, the</p>



Key Name	Description
	<p>system discards the request.</p> <p>Range: 1 - 200inclusive</p> <p>Value Type:decimal</p> <p>Default value: 70</p>
sip_registration_interval	<p>Indicates the frequency for sending REGISTER requests to a registration server.</p> <p>0 Indicates that the system does not send REGISTER requests to the registration server.</p> <p>Unit: minutes</p> <p>Range: 1 to 16535 inclusive</p> <p>Value Type:decimal</p> <p>Default value: 60</p>
sip_registration_server<n>_aor	<p>Indicates the address or record (aor) SIP uniform resource identifier (URI) that is bound to the sip_Contact (see below). Currently, the SIP host module only allows one contact for each address of record. The address of record is set in the To:and From:fields in the SIP REGISTER message. Set the nvalue to the applicable number of the registration server. Range: 1-255 characters</p> <p>Value Type: character string (up to 256 characters)</p> <p>Default value: <blank> (empty string indicating no username defined)</p>
sip_registration_server<n>_expires	<p>Indicates a value in minutes that defines how long the address of record or contact remains valid in the registration server. Set the n value to the applicable number of the registration server.</p> <p>Unit: minutes</p> <p>Range: 1 to 1,000,000 inclusive</p> <p>Value Type: decimal</p> <p>Default value: 3600</p>
sip_registration_server<n>_password	<p>Indicates the password used as part of the authentication process when the registration servers require authentication. Authentication is based on RFC2617. Set the nvalue to the applicable number of the registration server.</p> <p>Range: 1-255 characters</p> <p>Value Type: character string (up to 256 characters)</p> <p>Default value: <blank>(empty string indicating that the password is NULL)</p>
sip_registration_server<n>_username	<p>Indicates the username used as part of the authentication process when the registration servers require authentication. Authentication is based on RFC2617. Set the nvalue to the applicable number of the registration server.</p> <p>Range: 1 - 255 characters</p> <p>Value Type: character string (up to 256 characters)</p> <p>Default value: <blank> (empty string indicating no username defined)</p>
sip_Route	<p>Indicates the value provided in the SIP header for the Route parameter. The Routeparameter contains the address or multiple addresses of proxy servers. The system uses the Routeparameter to force routing of a request through the listed set of</p>

Key Name	Description
	<p>proxies.</p> <p>Range: 1 - 255characters (multiple addresses separated by a comma",")</p> <p>Value Type: character string (up to 256 characters)</p> <p>Default value: <blank>(empty string indicating no forced routing)</p>

Configuring Ethernet Interface Parameters

In the module.#/ethernet.# section of the configuration file, identify the module's interface x using the 1-based index of the Ethernet interface. This index allows an application to configure modules with multiple interfaces. Set the following parameters for a module configured to use an Ethernet interface.

Parameter	Value
dhcp	<p>Specifies whether the Ethernet interface uses dynamic host configuration protocol (DHCP) to request an IP address. Set this parameter to:</p> <ul style="list-style-type: none"> ■ DISABLED Indicates that the ip_addressparameter provides the IP address for the port. ■ ENABLED Configures the Ethernet interface to use DHCP to request an IP address. <p>Value type: character string</p> <p>Default value: DISABLED</p> <p> Note This parameter is ignored and reserved for future use.</p>
ethernet_speed	<p>Specifies the speed of the module's Ethernet interface. Set this parameter to:</p> <ul style="list-style-type: none"> ■ AUTO Configures the interface to automatically sense the speed of the network. ■ 10 Sets the speed of the interface to 10 Mbps. ■ 100 Sets the speed of the interface to 100 Mbps. <p>Unit: Mbps</p> <p>Range: 10, 100, or AUTO</p> <p>Value type: character string</p> <p>Default value: AUTO</p>
ip_address	<p>Specifies the IP address of the module's Ethernet interface. Set this parameter only if you set the value in the dhcp parameter to DISABLED.</p> <ul style="list-style-type: none"> ■ xxx.xxx.xxx.xxx Configures the Ethernet interface to use the specified IP address. <p>Value Type: dotted decimal</p> <p>Default value: None</p> <p> Note The Brooktrout module does not support the domain naming system (DNS) data base. Your application has the responsibility of converting domain names into resolved dotted-decimal notation IP addresses.</p>

Parameter	Value
ip_arp_timeout	<p>Specifies the arp (address resolution protocol) timeout value that the module's Ethernet interface uses. Set this parameter to:</p> <p>Unit: minutes</p> <p>Range: 0 - 1,000,000 where 0 indicates that the timeout is disabled.</p> <p>Value type: decimal</p> <p>Default value: 10</p>
ip_broadcast	<p>Specifies the IP broadcast address of the module's Ethernet interface. Set this parameter to:</p> <ul style="list-style-type: none"> ■ xxx.xxx.xxx.xxx Configures the Ethernet interface to use the specified broadcast address. <p>Value Type: dotted decimal</p> <p>Default value: None</p>
ip_gateway	<p>Specifies the gateway address of the module's Ethernet interface. Set this parameter to:</p> <ul style="list-style-type: none"> ■ xxx.xxx.xxx.xxx Configures the Ethernet interface to use the specified gateway address. <p>Value Type: dotted decimal</p> <p>Default value: None</p>
ip_interface	<p>Specifies the identity of the device on the PC with the IP interface that the virtual module can use for sending IP messages.</p> <p> Note This parameter only applies to host-based fax applications using a virtual module.</p> <p>Set the value of this parameter to the name of any device in the PC with an IP interface. If you do not provide a value (blank string), the virtual module chooses the first interface in the PC to send its messages.</p> <p>The format for the value provided in this parameter is:</p> <ul style="list-style-type: none"> ■ The name of the IP device (Global Unique Identifier (GUID)) followed by ■ A colon (:) character followed by ■ The index number of the device's IP address <p>Example: {4D36E96E-E325-11CE-BFC1-08002BE10318}:0</p> <p> Note Currently, the API only supports the GUID information on Windows operating systems.</p> <p>Value Type: character string (up to 256 characters)</p> <p>Default value: <blank> (the virtual module uses the first interface in the PC for sending IP messages)</p>
ip_netmask	<p>Specifies the netmask address of the module's Ethernet interface. Set this parameter only if you set the value in the dhcpparameter to DISABLED.</p> <ul style="list-style-type: none"> ■ xxx.xxx.xxx.xxx Configures the Ethernet interface to use the specified netmask address. <p>Value Type: dotted decimal</p> <p>Default value: 0.0.0.0</p>

Parameter	Value
media_port_max	<p>Specifies the highest IP port number that the module can use. Set this value to a value 1000 above the value specified for the media_port_min parameter.</p> <p>57000 Sets this value as the highest port number.</p> <p>Range: 2024-65535</p> <p>Value type: decimal</p> <p>Default value: 57000</p>
media_port_min	<p>Specifies the lowest IP port number that the module can use for media transmissions. Set this value to a value 1000 below the value specified for the media_port_max parameter.</p> <p>56000 :Sets this value as the lowest port number.</p> <p>Range: 1024-64535</p> <p>Value type: decimal</p> <p>Default value: 56000</p>

IP Call Control Configuration File Examples

This section contains several coded examples of call control configuration files defined for the indicated IP scenarios.

Example 1: Single Module, Single SIP Stack

```
[host_module.1]
module_library=brktsip.dll
enabled=true

[host_module.1/t38parameters]
t38_fax_rate_management=transferredTCF
t38_max_bit_rate=14400
t38_fax_udp_ec=t38UDPRedundancy
media_renegotiate_delay_inbound=1000
media_renegotiate_delay_outbound=2000
t38_fax_fill_bit_removal=false
t38_fax_transcoding_jbig=false
t38_fax_transcoding_mmr=false
t38_t30_fastnotify=true
t38_UDPTL_redundancy_depth_control=5
t38_UDPTL_redundancy_depth_image=2

[host_module.1/parameters]
sip_contact=
sip_description_URI=http://www.brooktrout.com
sip_default_gateway=
sip_email=default@brooktrout.com
sip_from=from@brooktrout.com
sip_max_forwards=20
sip_max_sessions=30
sip_phone=+1-4085551212
sip_proxy_server1=
sip_proxy_server2=
sip_proxy_server3=
sip_registration_interval=60
sip_registration_server1=
sip_registration_server2=
sip_registration_server3=
```

```

sip_session_description=description_brooktrout
sip_session_name=session_brooktrout
sip_username=brooktrout

```

```

[module.2]

```

```

[module.2/clock_config]
clock_source=internal
clock_mode=master
clock_compatibility=none

```

```

[module.2/ethernet.1]
dhcp=disabled
ip_address=192.168.0.100
ip_netmask=255.255.255.0
ip_gateway=192.168.0.1
ip_broadcast=192.168.0.2
ip_arp_broadcast=10
media_port_min=1000
media_port_max=2000
ethernet_speed=auto

```

```

[module.2/host_cc.1]
host_module=1
number_of_channels=24

```

Example 2: Single Module, Single H.323 Stack

```

[host_module.1]
module_library=brkth323.dll
enabled=true

```

```

[host_module.1/t38parameters]
t38_fax_rate_management=transferredTCF
t38_max_bit_rate=14400
t38_fax_udp_ec=t38UDPRedundancy
media_renegotiate_delay_inbound=1000
media_renegotiate_delay_outbound=2000
t38_fax_fill_bit_removal=false
t38_fax_transcoding_jbig=false
t38_fax_transcoding_mmr=false
t38_t30_fastnotify=true
t38_UDPTL_redundancy_depth_control=5
t38_UDPTL_redundancy_depth_image=2

```

```

[host_module.1/parameters]
h323_el64alias=5551212
h323_default_gateway=
h323_gatekeeper_id=
h323_gatekeeper_ip_address=
h323_gatekeeper_ttl=10
h323_h323IDalias=yourname
h323_local_ip_address=
h323_max_sessions=256
h323_register=0
h323_support_alternate_gk=0

```

```

[module.2]

```

```

[module.2/clock_config]clock_source=internal
clock_mode=master
clock_compatibility=none

```

```

[module.2/ethernet.1]
ip_address=192.168.0.100

```

```
ip_netmask=255.255.255.0
ip_gateway=192.168.0.1
ip_arp_timeout=600
media_port_min=56000
media_port_max=57000
ethernet_speed=auto

[module.2/host_cc.1]
host_module=1
number_of_channels=24
```



Dialogic Diva Server fax boards and drivers

Qualified platforms

A supported operating system is one for which the software has been designed and tested. While it is possible that the software will operate properly with other versions, but we have not necessarily tested our software on platforms that are not listed. Escher does not support platforms and versions that are not in the following list:

- Windows Server 2003 SP2 32-bits or 64-bits.
- Windows Server 2008 32-bits or 64-bits.
- Red Hat Enterprise 3, 4 and 5.

Installing Diva Server fax boards

To use one or more Diva Server fax boards with VSI-FAX Server, follow the steps below in the given order:

1. Physically install the fax board in the machine following the manufacturer recommendations. For this, refer to the manual shipped with the boards. You can also visit the Dialogic web site at <http://www.dialogic.com>, and consult documentation on these fax boards at:
 - For Windows: <http://www.dialogic.com/support/helpweb/divasvr/default.htm> .
 - For UNIX/Linux: <http://www.dialogic.com/support/helpweb/slnxen/> .
2. Install the Diva Server drivers, as described below, depending on your operating system:
 - For Windows, see [Diva Server drivers installation for Windows](#).
 - For UNIX/Linux, see [Diva Server drivers installation for UNIX/Linux](#).



Note

Drivers for Dialogic Diva Server boards are not supplied with the VSI-FAX CD. You need to download them from the Dialogic Web site.

3. Install VSI-FAX Server.

Diva Server drivers installation for Windows

To install and configure Diva Server board drivers for Windows:

Be aware that built-in Diva drivers available by default on Windows are not full-featured and are missing useful diagnostic programs. It is recommended that you upgrade to the latest Diva drivers available at Dialogic.

1. Download and install the Windows drivers for Diva Server fax boards from http://www.dialogic.com/products/tdm_boards/system_release_software/Diva_for_Windows_2000.htm.
2. If you are configuring a Diva Fax Server for T1 Robbed-bit, after the Diva Server drivers installation, you must reconfigure the "Lines Switch Type" to "RBS T1 (Robbed Bit Signaling)" through the [Diva Server Configuration Manager](#).
3. In the [Diva Server Configuration Manager](#), connect the Diva adapter to the Diva Server API Service. For VSI-FAX, the Diva adapter does not need to be connected to any other Diva Services (such as RAS).
4. Check the proper functioning of your Diva Server fax board, using test tools provided by Dialogic.

For all these preliminary steps, refer to Dialogic documentation and technical support. Then, you are ready to install the fax server following the installation procedure explained in *VSI-FAX Pre-Installation* in the [Installation and Administration](#) documentation.

Diva Server drivers installation for UNIX/Linux

To install and configure Diva Server board drivers on UNIX/Linux:

1. Download the Dialogic® Diva® System Release for Linux package from the Dialogic Web site: http://www.dialogic.com/products/tdm_boards/system_release_software/Diva_for_Linux.htm.
2. Follow the installation instructions from the readme.txt file.
3. Install the VSI-FAX Server.

During the installation process you will be prompted to configure a modem, click **No**.

You will then be prompted to configure your Diva Server boards. Click **Yes**. Complete the installation.

See also

For information about installing VSI-FAX server, refer to *VSI-FAX Pre-Installation* in the [Installation and Administration](#) documentation.

Troubleshooting

If lines don't come up and remain in a Not running state using vfxstat, you have to create them manually using the following commands:

```
vfxadmin device -a -i ei -v $ChannelName -n "Eicon $ChannelName" $ChannelName.
```

Where \$ChannelName has the following form: chCLL

- C: Controller Number using 1 digit
- LL: Line Number using 2 digits

Example:

For **Diva Server 4BRI** board:

```
vfxadmin device -a -i ei -v ch101 -n "Diva ch101" ch101
vfxadmin device -a -i ei -v ch102 -n "Diva ch102" ch102
vfxadmin device -a -i ei -v ch201 -n "Diva ch201" ch201
vfxadmin device -a -i ei -v ch202 -n "Diva ch202" ch202
```

For **Diva Server PRI/E1 -30** board:

```
vfxadmin device -a -i ei -v ch101 -n "Diva ch101" ch101
vfxadmin device -a -i ei -v ch102 -n "Diva ch102" ch102
....
vfxadmin device -a -i ei -v ch129 -n "Diva ch129" ch129
vfxadmin device -a -i ei -v ch130 -n "Diva ch130" ch130
```

For **Diva Server Analog 8P** board:

```
vfxadmin device -a -i ei -v ch101 -n "Diva ch101" ch101
vfxadmin device -a -i ei -v ch102 -n "Diva ch102" ch102
vfxadmin device -a -i ei -v ch103 -n "Diva ch103" ch103
vfxadmin device -a -i ei -v ch104 -n "Diva ch104" ch104
vfxadmin device -a -i ei -v ch105 -n "Diva ch105" ch105
vfxadmin device -a -i ei -v ch106 -n "Diva ch106" ch106
vfxadmin device -a -i ei -v ch107 -n "Diva ch107" ch107
vfxadmin device -a -i ei -v ch108 -n "Diva ch108" ch108
```

Reinstallation

If you want to install a Dialogic Diva Server board after the VSI-FAX server installation, you must execute the fax server installation using the following commands:

- **Windows:** launch `vsiconfig.exe` in the `vsifax\lbin` folder, where `vsifax` is the installation folder.
- **Linux:** execute `./vsi-server-config.sh` in the `vsifax/lbin` directory, where `vsifax` is the installation directory.

The Diva Server fax board will be automatically detected during the installation.